

AMERICAN FORESTRY

THE MAGAZINE OF THE AMERICAN FORESTRY ASSOCIATION
WASHINGTON, D. C.

PERCIVAL SHELDON RIDSDALE, Editor

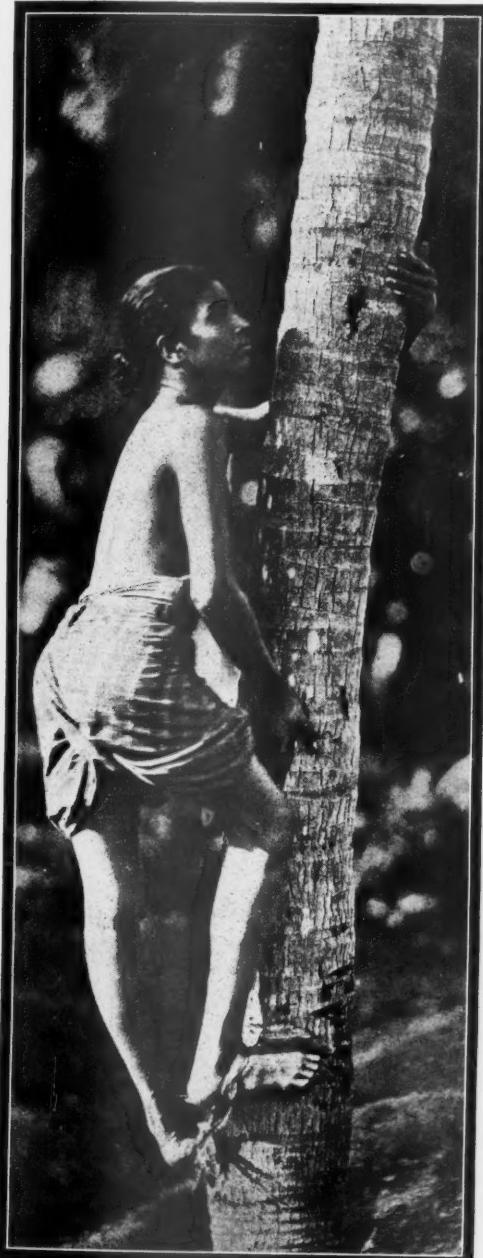
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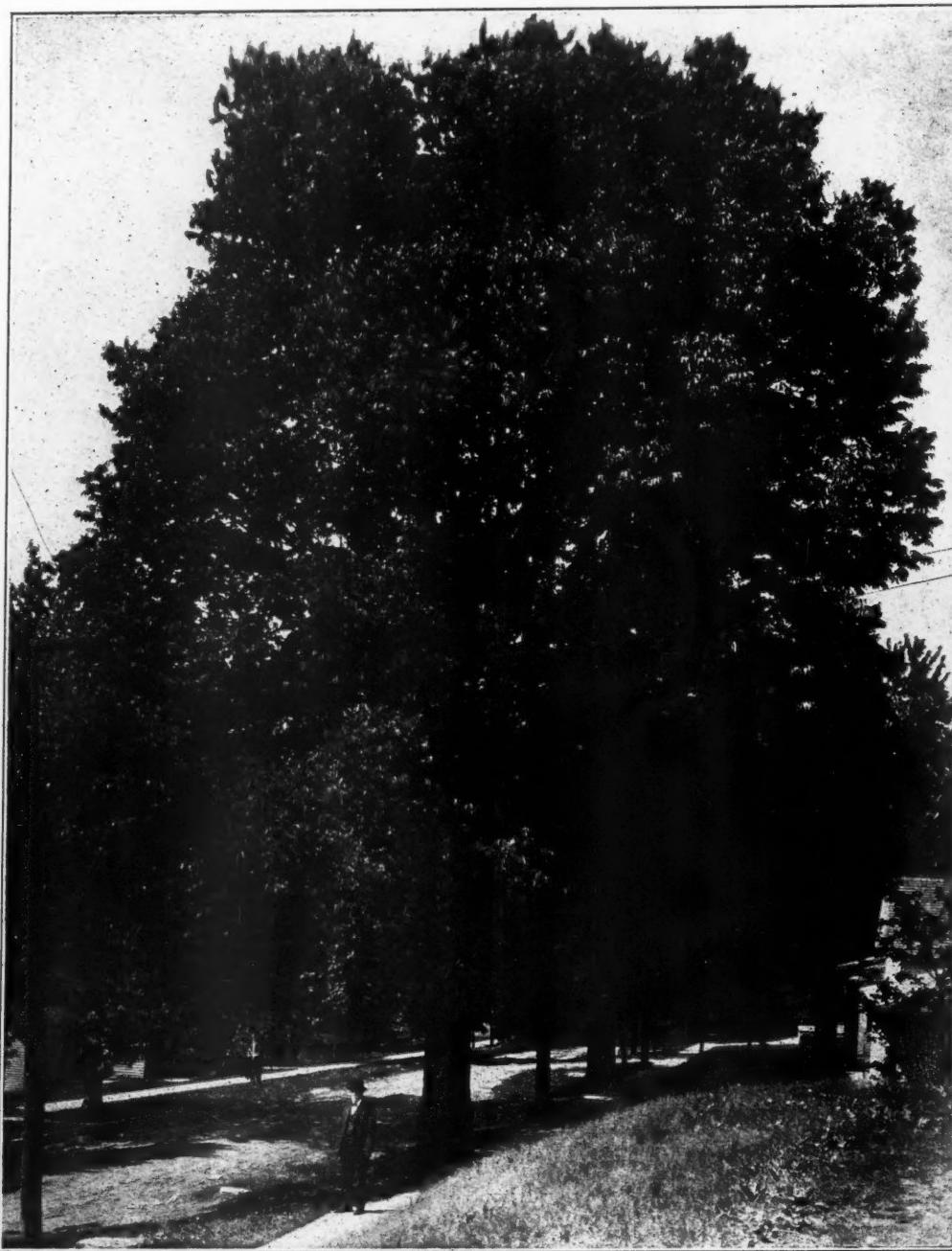
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“HALL OF FAME” FOR TREES



THE LINCOLN MEMORIAL TREE

This tree, the only one in the world as far as known planted in memory of Abraham Lincoln, is nominated for a place in the Hall of Fame by A. S. Bailey, of Decorah, Iowa, where the tree now stands. The tree was planted by John Finn, who is still living. He was in Chicago when Abraham Lincoln was assassinated and he returned home much depressed. April 27, 1865, Governor Stone, of Iowa, declared as a day of mourning for Lincoln. Finn went into the woods and dug up a small huckleberry shoot which he transplanted on the street in front of his home. The shoot took root and today is one of the most magnificent trees in the state of Iowa. It is now 110 feet high and nearly 12 feet in circumference. Mr. Finn is seen standing at the foot of the tree.

AMERICAN FORESTRY

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EDITORIAL

LUMBERMEN ENDORSE NATIONAL FOREST POLICY

THE National Lumber Manufacturers' Association, through its Forestry Committee and its Board of Directors, has gone squarely on record as favoring the "early development of an American forest policy which shall substitute for indifference or accident an intelligent, practical, equitable, and concerted program for the perpetuation of forest supplies." The Association's judgment as to what such a program should include is indicated by its suggestions for national legislation. In addition to the efforts already being made by the Federal Government to perpetuate the forests and to bring about the establishment of a National Forest policy, the Association urges the following legislation by Congress:

1. An appropriation of not less than \$1,000,000 annually for co-operation by the Forest Service with States and forest owners willing to bear an equal or greater share in the costs of locally applicable systems for protecting from fire both forests and forest lands which are restocking.

2. An appropriation adequate for prompt survey of the nation's forest resources by the Forest Service, utilizing the facilities of the forest producing industries, the States and other sources of information, to determine the quantity, location, and suitability for various commercial uses of our remaining timber, to determine the approximate area, location and condition of lands chiefly valuable for timber growth, and to obtain other information bearing on the future of forest supplies.

3. Adequate provision for research by the Forest Service, through necessary experiment stations and in co-operation with available agencies, to determine desirable methods of wood utilization, wood preservation, forest reproduction, and the control of insects, disease, and other forest enemies.

4. Liberal provision for the selection and acquisition, by purchase and by exchange, of such lands as should be added to the National Forest system to assure their best protection and management in the public interest.

5. Provision for replanting such denuded areas in the National Forests as are evidently not to be restocked by natural processes.

Since State legislation is regarded by the Association as properly a matter of local self-determination, it offers on behalf of the industry as a whole no suggestions beyond the expression of certain broad principles. The most fundamental of these is that practical methods of forest protection and perpetuation are questions primarily of local interest and should therefore be the sub-

ject of State legislation, if of any. In other words, the Federal Government should be authorized to co-operate financially with States and private forest owners in the protection of forests from fire, but should be given no power either to prescribe how such protection should be effected or to require other measures necessary for the perpetuation of the forest. In line with this position is the Association's statement that "the Forest Service should be the recognized leader of public forestry thought and effort along general lines, because of its impartial position and broad education facilities, but vested with no regulatory control over State or private lands not mutually agreed to by the owners thereof for specific purposes in connection with the general policy herein suggested."

Other points of interest in connection with the general statement of principles put forth by the Association include the declaration that the growing of future timber crops must be largely, but by no means wholly, a Government and State function; and that both Government and State should therefore acquire, by purchase and by exchange of stumpage for land, much larger areas of permanent forest land than they now possess. If private owners refuse either to sell their cut-over lands or to take reasonable steps themselves to keep them in timber crops, the Government and States should be permitted to condemn any deforested land classified as suitable chiefly for forest growing and not suitable for agriculture, paying for it at prices comparable to those paid in voluntary transactions. The reimbursement of local taxing units for the loss of taxes on Government-owned land is suggested, as is also the assistance by the Federal Government in the development of a State policy in forest improvement, protection, and tax reform as to make conditions favorable for State and private forest growth. The development of a wise, consistent policy for the marketing of publicly-owned timber, to the end of permanent public good, uninfluenced by considerations of temporary revenue, is urged. So far as the forest owners themselves are concerned, the Association states that "public-spirited lumbermen will support such steps along the foregoing State and Federal lines as are practicable. Equally with the public such lumbermen should be protected against the consequences of short-sighted policy either within their own industry or elsewhere."

Much difference of opinion will doubtless exist as to the wisdom of certain specific features of the program proposed by the National Lumber Manufacturers' Asso-

ciation. Be this as it may, it is a significant and encouraging fact that for the first time a national association of forest owners and timber producers has definitely committed itself to the principle that both national and industrial welfare demand the early development of an American forest policy which shall substitute for indifference and accident a comprehensive program for the perpetuation of our forest supplies.

Much yet remains to be done in translating the principles advanced by the Association into a concrete program for Federal and State action. In passing, it may be remarked that in the development of such a program much more emphasis will have to be laid on measures to keep forest lands productive and to provide for the utilization of existing forests in such a way as to secure

natural reproduction without the necessity of resorting to planting. Fire protection, both of mature and young forests, is obviously essential, but it must be supplemented by the proper silvicultural handling of the present forests if their perpetuation is to be effected economically. In general there is a tendency not to lay too much stress on the measures necessary to restore deforested lands to production, but rather to lay too little stress on the measures necessary to prevent deforestation.

Now that the lumbermen have definitely committed themselves to the support of a national forest policy, it is to be hoped that more rapid progress can be made in working out the details of such a policy, particularly with respect to the knotty problem as to the relative jurisdiction of Federal and State authorities.

FOREST PRODUCTS RESEARCH TO THE FORE

THE decennial celebration of the United States Forest Products Laboratory at Madison, Wisconsin, on July 22-23, was an event that is unique in the history of Government institutions. The celebration was planned, arranged for, and financed by friends of the Laboratory as a mark of appreciation of its ten years of service in industrial research. So far as our knowledge goes, no other Government institution has ever been similarly honored. The event was decidedly national in character, the nearly 300 visitors who participated in it coming from all over the country and even from Canada and Porto Rico. No stronger testimonial could be offered of the regard in which the Laboratory is held by those who have benefited from its activities.

The celebration was much more, however, than an exchange of congratulations on results already accomplished. To a much larger extent, emphasis was laid upon the steadily increasing need for further research regarding the properties and uses of wood and other forest products and the opportunities that lie ahead of the Laboratory in its particular field of industrial research. It is safe to say that those attending the celebration came away with a more vivid idea than ever before of the value of the scientific research in forest

products by an organized force of trained investigators, and that the members of the Laboratory in turn received a broader view of their work and an inspiration of service to be rendered which will help them to greater achievements in the next 10 years than in the past.

The completion of the first decade of industrial research in forest products in this country should serve to emphasize the importance of this phase of forest activities in the development of a national forest policy. Too often in our discussion of the need for reforestation is the fact overlooked that the economical use of forest products is fully as important as their production. Making the same amount of wood go twice as far as before is as effective a means of conservation as producing twice as much material per acre as before. It is hoped that the recent celebration of the Forest Products Laboratory, by emphasizing this fact, will lead to a material expansion of our present program of research in forest products, not merely as a commercial venture which will enable the timberland owner, the lumberman, or the manufacturer to squeeze a few dollars more out of his product, but as an integral part of the movement for the protection and perpetuation of our forest resources.

WOOD-USERS ORGANIZE TO SAFEGUARD THEIR SUPPLY OF RAW MATERIAL

ON July 23, the wood-using industries of the country took action fully as significant as that taken by the National Lumber Manufacturers Association earlier in the month. For the first time in their history representatives of some 21 wood-using industries got together to discuss the future supply of the raw material on which their industries are dependent. As a result of this conference, which was called by a voluntary committee from the industries, a resolution was unanimously adopted authorizing the chairman to appoint a committee to formulate a definite plan for the organization of a committee representing all the associations of wood-users for the purpose of considering present or proposed legislation dealing with reforestation and for formulating a program of Federal and State legislation which will

represent the views and interests of the wood-using industries.

It is a highly significant fact that the depletion of the timber supply of the country has now reached a point where the industries dependent upon it feel themselves forced to organize for the purpose of taking action to safeguard their future supplies. Nothing could indicate more clearly the extent to which our "inexhaustible" forest resources have been dissipated and the need for prompt action if this country is to continue to supply its own needs for wood and other forest products. That the seriousness of the present situation is fully realized by the wood-users is indicated by the remarkable unanimity of sentiment which prevailed at the conference. The shortage of many woods needed by the

industries represented was strongly emphasized, and not a single voice was raised in opposition to the plan of organizing a committee through which the wood-using industries as a whole could make themselves felt in the development of a national forest policy.

Of equal significance with the action of the wood-users in organizing themselves for action was the hearty endorsement of the movement by the representatives of lumber companies and lumber manufacturers associations present at the conference. Dr. Compton, secretary-manager of the National Lumber Manufacturers Association, voiced the general sentiment of those present when he said, "I am sure that I speak for timber owners and manufacturers as a whole when I say that the movement which you contemplate will have the very hearty endorsement of the manufacturers and the timber owners, who would be glad to have created among you the machinery by which you can carry into effect a practical plan which will preserve and largely main-

tain the perpetuity of the forests in which we are all interested."

The point has now been reached, therefore, where both the lumber manufacturers and the wood-users are working through their own organizations, but in complete harmony, for the development of a nation-wide forest policy which will result in the protection and perpetuation of our forest resources. It is particularly encouraging that the wood-using industries, whose relation to the forest, while intimate, is sometimes regarded as less so than that of the lumbermen, should have organized on their own initiative to take an active part in formulating and securing the practical application of a forest policy. There is no question but that the wood-users, connected as they are with practically every phase of our industrial life, can exercise a most potent and much needed influence in bringing about the adoption of a definite and effective program.

MASSACHUSETTS' NEW FORESTRY BILL

THE new Forest Act passed at the last session of the Massachusetts Legislature is in reality a substitute for the bill presented by the Massachusetts Forestry Association which was based upon an initiative petition signed by more than 31,000 citizens of the commonwealth, which provided for the purchase and replanting of 250,000 acres of land during a period of ten years, and was to be financed by a serial bond issue with interest compounded during the period of production, the annual cost of maintenance to be paid out of current revenue.

A very significant and gratifying feature of the campaign waged to secure the passage of the bill was the cordial and earnest support given it by many prominent lumbermen of the State who appeared before the Committee on Agriculture and Ways and Means, and urged

the importance of the measure as the only means of preventing a serious lumber famine in the near future. The support of these men was especially welcome because of their apparent indifference to forestry legislation in the past.

The Committee of Ways and Means, after many conferences with the friends of the measure, reported a bill considerably modified, reducing the amount of land to be acquired to 100,000 acres; also eliminating the bond feature. The cost of land acquired under this act must not exceed an average price of \$5 per acre. If however, it is found that a sufficient amount of land cannot be acquired at this price, the Legislature may from time to time increase the rate. This act went into effect on August 5.

BUSINESS MEN FAVOR FOREST CONSERVATION

THE Eastern Shook and Wooden Box Manufacturers Association has come forward with a decidedly progressive contribution to the development of a nation-wide forest policy in approving forward-looking measures for fire protection, conservation in lumbering operations, reforestation and taxation.

The Association emphasizes particularly the importance of more adequate fire protection and compulsory slash disposal and top lopping. It recommends additional State appropriations for the work and the development of watch tower and patrol systems in those States where they are not already installed. The responsibility of the private owner in fire prevention and protection is clearly recognized and the belief is expressed that private owners should be required to participate to a reasonable extent with the State in the cost of fire protection.

The Association expresses the belief that "the time has come when all stands of forest growth, whether on pri-

vately owned lands or on publicly owned preserves, must be regarded as an asset of the State in the preservation of watersheds, protection of the public health, and conservation of public resources in other ways, as well as the preservation of the lumber supply." Recognizing these facts, it believes that private timberland owners and operators should be willing to submit cheerfully to a reasonable amount of regulation under the supervision of the Forest Departments of the various States in order to assure the perpetuation of the timber supply of the country. In addition to action by private owners, it favors the establishment of State and municipal forests and endorses heartily a campaign of public education on the entire question of the preservation of our forest resources. As one means of promoting such a campaign it has continued its Forestry Committee with instructions to co-operate with other associations and civic bodies which are interested in the forest problem.

NEW YORK'S FORESTS AND THEIR FUTURE

BY ARTHUR BERNARD RECKNAGEL

FORESTER AND SECRETARY, EMPIRE STATE FOREST PRODUCTS ASSOCIATION

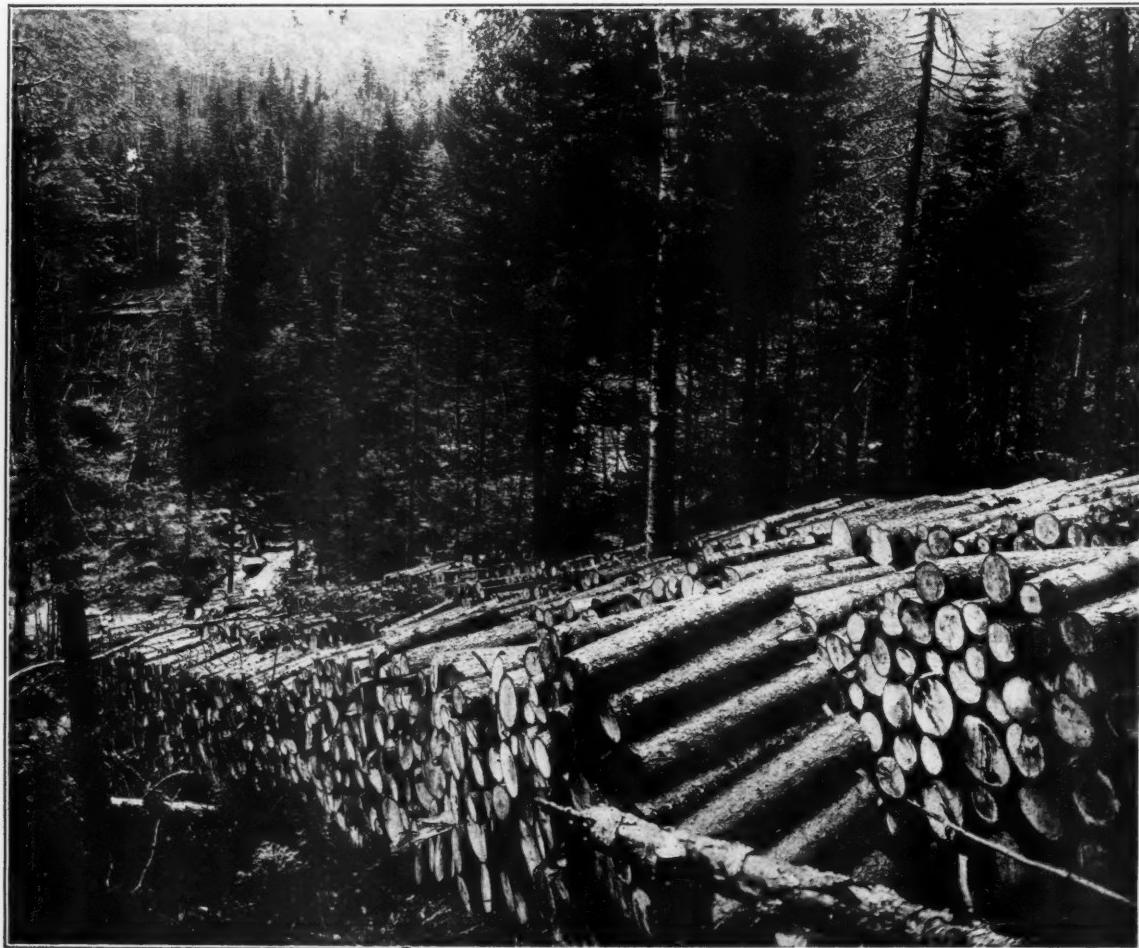
THE trouble is not, as President Hadley, of Yale University once remarked, that figures will lie, but that liars will figure. And such liars are often the best meaning people in the world.

So it is with any attempts to predict the future of the forest industries of New York State. Certain definite tendencies may be observed. Certain facts as to available supplies and present consumption noted. From these premises certain deductions may be made. But like the classic syllogism: "Brutus killed Caesar"—Caesar is a word of two syllables—therefore, "Brutus killed a word of two syllables," the conclusions are apt to be false unless correctly interpreted.

The statistics of any industry—even of the forest industry, are so dry that they may be passed over after extracting only the salient facts. These are that, as a wood-producing State, New York is falling further and further behind her sister states. For example, in the matter of lumber production, a recent government bulle-

tin shows that New York now ranks twenty-fifth with a yearly cut of 335,000,000 board feet, out of a total cut of nearly 32,000,000,000 feet in the whole country. In other words, New York State produces about one per cent of the total lumber cut of the country, whereas ten years ago it produced 680,000,000 board feet out of a total cut of nearly 45,000,000,000 feet, or about one and a half per cent of the total.

There is no need to pursue this phase of the subject. The tendency is evident. Now, how about its place as a timber consuming State? The Conservation Commission, in its report for 1919, says that "New York is the greatest user of wood of any State, the total annual consumption amounting to over one and three quarters billion board feet of lumber, in addition to one million cords of pulpwood, over one hundred and thirty thousand cords for wood alcohol and other products of distillation, and enormous quantities of other material for railroad ties, cooperage, poles and fuel wood. It has



FULP WOOD PILED BESIDE THE OPALESCENT RIVER IN THE HEART OF THE ADIRONDACKS

been estimated that the annual lumber bill of the State is over sixty million dollars, about two-thirds of which goes outside of the State."

Consider this just a minute. New York uses, each year, one and three-quarters billion board feet of lumber. It produces each year only 335,-

000,000 board feet, or about one-fifth of what is used!

So, also in pulpwood. Each year New York State, the second greatest pulp and paper making State in the union, uses a million cords of pulpwood. It produces each year only half a million cords.

Thus it is evident that "Brutus" (in the sense that "Brutus" is the public, as in Barrie's play) is killing



PULP WOOD CUT FROM A SINGLE SPRUCE TREE IN THE ADIRONDACK FOREST

"Caesar." But "Caesar" is a word of two syllables. The first syllable is the relation of what we use to what we produce. The second syllable is the relation of what we produce to our available supplies of wood and their replenishment. In other words, regrettable as it is to find New York

having to call on neighbor states for her manufactured forest products, it would not be so bad if the remaining forest areas of the State were being kept productive up to their maximum capacity. France and Germany, the leading exponents of proper forest management, have never been able to supply the national needs for wood without recourse to importation. But the "second syllable

Table showing, for the chief timber trees in New York State, the relation between the Actual Volume Cut (Col. II) and the Volume which could be cut without diminishing the Growing Stock (Col. III). Also showing the relation between the Actual Volume of Standing Timber (Col. V) and the Volume needed to support the present rate of cutting (Col. VI).

I Species	II Actual Cut	III Allowable Cut	IV Comparison II and III	V Actual Volume	VI Needed Volume	VII Comparison V and VI
Spruce {Bd. Ft. (Cords)	25,800,000 335,000	30,100,000 480,000	+ 4,300,000 + 145,000	1,053,000,000 16,784,000	906,000,000 11,740,000	+ 147,000,000 + 5,044,000
Balsam {Bd. Ft. (Cords)	1,500,000 54,500	3,800,000 13,500	+ 2,300,000 - 41,000	132,300,000 473,000	52,700,000 1,906,000	+ 79,600,000 - 1,433,000
Pine, Bd. Ft.	62,700,000	7,100,000	- 55,600,000	353,600,000	3,133,000,000	-2,779,400,000
Cedar, Bd. Ft.	230,000	301,000	+ 71,000	21,100,000	16,000,000	+ 5,100,000
Hemlock {Bd. Ft. (Cords)	75,000,000 85,100	7,400,000 20,800	- 67,600,000 - 64,300	591,300,000 1,664,000	6,000,000,000 6,804,000	-5,408,700,000 - 5,140,000
Poplar {Bd. Ft. (Cords)	1,200,000 22,900	700,000 8,300	- 500,000 - 14,600	13,900,000 166,000	23,300,000 459,000	- 29,400,000 - 293,000
Beech, Bd. Ft.	37,200,000	20,500,000	- 16,700,000	1,746,800,000	3,534,000,000	-1,787,200,000
Birch, Bd. Ft.	25,500,000	17,000,000	- 8,500,000	1,441,000,000	2,423,000,000	- 982,000,000
Maple, Bd. Ft.	55,800,000	16,200,000	- 39,600,000	1,374,000,000	5,300,000,000	- 3,926,000,000

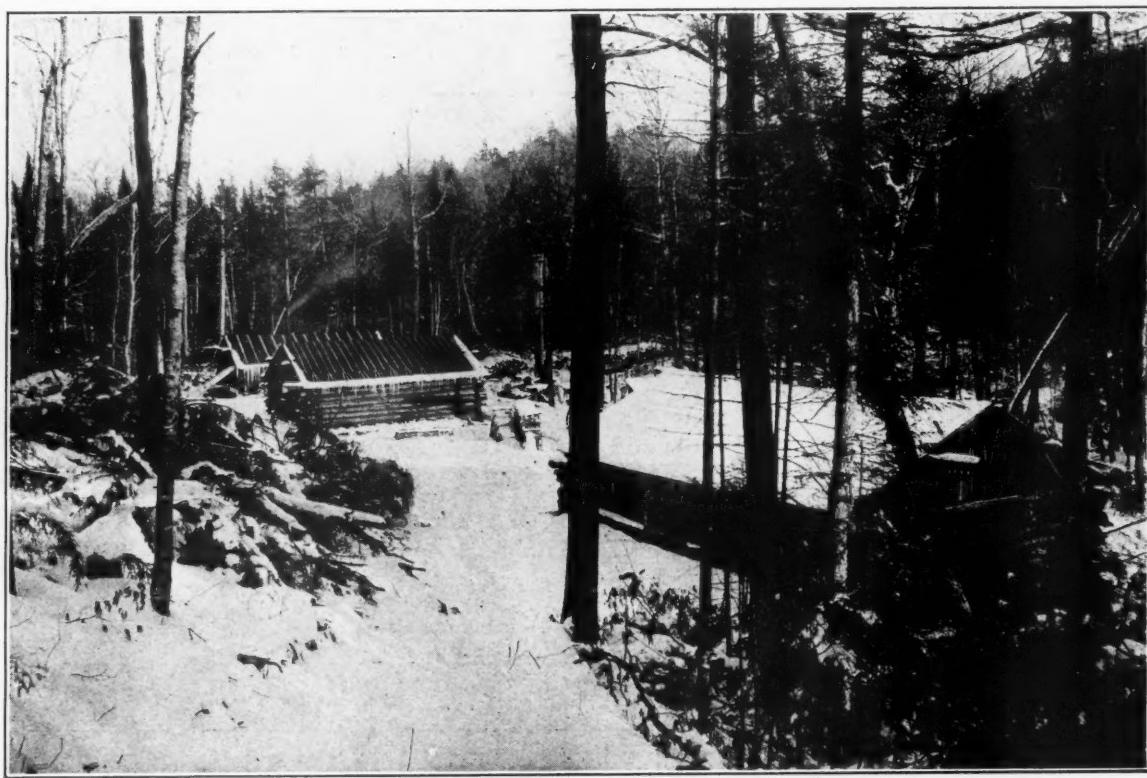
ble" is that we are not even maintaining our present production by a proper care of our available supplies. Leaving out of consideration the State Forest Preserve with its eight billion feet of standing timber, as unavailable for relief as the salty ocean water was to the Ancient Mariner dying of thirst—leaving this paradox of non-productive forestry out of consideration, there is, in the State of New York, on private forests of five hundred acres or more, a total of 8,436 million board feet and 115,731 thousand cords. This is the available supply on about six million acres of private forest holdings. The figures including the woodlots and the State Forest Preserve bring the total up to nearly twenty-six billion board feet and over 120,000,000 cords.

But we deal here, primarily, with the problem of the

forest industries of the State cut more than the growing stock will permit, there is a similar reduction of capital.

This is precisely what is taking place in New York State today. The accompanying table shows that the yearly cut of our chief commercial trees is, with the exception only of spruce, balsam and cedar, far in excess of what the growing stock will support. That is, we are using up our capital without adequate replacement. This is particularly marked in pine and in hemlock, and in the group of northern hardwoods where maple is the chief sufferer due to the great inroads of recent years for flooring and for various kinds of woodenware.

The only reason why spruce and balsam fare better is due to the fact that many pulp and paper mills are



GENERAL VIEW OF AN ADIRONDACK LUMBER CAMP

larger and more productive forest properties—from these there is cut, annually, a certain amount of each species. This may be likened to drawing the interest on a capital sum. If a man has \$10,000 in 4½ per cent Liberty Bonds, the annual interest yield is \$425. So, with a certain forest capital, or growing stock, the annual interest or allowable annual cut should not greatly exceed 2½ per cent if the rotation be 80 years. That is, in a forest under management for continuous production, the actual cut of any species should not greatly exceed the total available volume of that species divided by one-half the rotation. This method of determining the allowable annual cut is known as von Mantel's formula.

If the man with a capital of \$10,000 draws out more than \$425 yearly, he encroaches on his principal. If the

buying all the wood they can get from Canada and elsewhere while holding their own standing spruce as a reserve supply.

To bring this out more clearly, consider what capital a man must possess who wishes an annual income of \$425 thereon at 4½ per cent interest. The answer is, obviously, \$10,000. Similarly one can determine what forest capital or growing stock is needed to support the present actual cut of our chief commercial trees. Then, by comparing this with the available growing stock it will appear whether we have a sufficient, an excess or a deficient growing stock.

In New York State, as the figures in the table show, the forest capital, or growing stock, is deficient in all but spruce and balsam and cedar (for reasons already

explained). For all the other main species there is a striking shortage.

If we were to make a generalization from these figures, it would be that, to maintain our present cut in New York State, we need about twice as much standing timber as is available today. Or else our forests must be made twice as productive by the practice of silviculture.

duction is far below the consumption within the State and is far in excess of what the available supplies of standing timber will support. The syllogism is complete: Brutus (dear public) is killing Cæsar. This Cæsar (the forest industry) is bleeding from two wounds—under-production and over-cutting. Brutus (dear public) is demanding greater production and at the same time more



THE CREW OF AN ADIRONDACK LUMBER CAMP READY TO START FOR WORK

ture. The curtailing of our present cut is not desirable; a better solution lies in having *both* an increased growing stock and a greater growth of timber per acre through the application of proper silvicultural methods.

And now we come to the point from which we started. There is a tendency towards decline in the production of forest products in the State of New York. This pro-

conservative cutting. The conclusion, so far as our imperfect knowledge goes, is that the public must co-operate with the timber producer and grower so that they may fulfill their mutual obligation to maintain the forest industries unimpaired and the forest itself continuously productive.

But that, as Kipling says, is another story.

A GRATEFUL ACKNOWLEDGEMENT FROM FRANCE

IN January of this year, presentation of an enormous quantity of forest tree seed was made to France, Belgium and Great Britain by the American Forestry Association, for the rehabilitation of the war-torn forest areas in those countries. The gift was deeply appreciated and the Association is just in receipt of the following letter from France:

Paris, July 5, 1920.

"My dear Mr. President:

"I have the honor to acknowledge receipt of the seeds, the sending of which was announced in your letters of January 19 and March 22, 1920.

"These seeds reached France at the beginning of June in excellent condition.

"I shall be grateful to you if you will act as my interpreter to the American Forestry Association, expressing to them my sincere thanks for their generous decision to co-operate in the rehabilitation of the forests of France which were devastated by the war.

"The seeds which you were kind enough to send will

be planted as soon as the season permits in the nurseries of the North, the Aisne, the Ardennes, the Oise, the Vosges, and the Meuse, and the plants from these seeds will be transplanted to the devastated forests in the vicinity of each nursery, at the most interesting points and with due regard for the requirements of each species.

"Seeds of certain species that are little known in France, especially those of the Western Larch, which are to be given special care and study, will be planted in the nursery of the Forest School of Barres, and when the plants from these seeds are large enough they will be sent for planting to those portions of the devastated regions, which appear to be especially suited to them.

"Accept, Sir, the assurance of my highest regard.

Le Conseiller d'Etat,
Director General des Eaux et Forêts.
(Signed) Dabat.

"The President, The American Forestry Association,
Washington, D. C."

THE FORESTS OF A NEW REPUBLIC

BY E. F. PRANTNER, EDITOR, CZECHOSLOVAK REVIEW

FORESTRY in the new Czechoslovak Republic is receiving the serious attention its importance as an economic factor warrants. About 12,500,000 acres are given over to forest cultivation, or, in other words, approximately 30 per cent of the republic's whole area of over 55,000 square miles. The proportion of the forests differ in the various sections—Moravia boasts of 28.6 per cent, Bohemia has 29.6 per cent, Slovakia shows 34.5 per cent, and Silesia leads with 34.8 per cent.

It is significant that of late years forests have decreased throughout the world to an appreciable extent. Nevertheless,



FOREST AND FARM

Between forest areas are numerous stretches of farm land, well cultivated by thrifty, intelligent farmers.

noteworthy that the leaf forests prevail, forming about 67 per cent of the whole, and the needle forests make up the balance, or 33 per cent. Ownership of these forests is singular. The state owns about 1,400,000 acres, charitable institutions own 600,000 acres, municipalities hold 2,500,000 acres and the large estates, held by private owners, cover 8,000,000 acres. It must not be taken for granted that the extensive Czechoslovak forests were given over to the uses of the whole people. On the contrary, all the bene-



WELL FORESTED HILLS

Pines and firs cover most of the land in Bohemia, while in Slovakia and Carpathia the leaf forests prevail.

the territories now comprising the Czechoslovak Republic, during the period 1875-1910, added no less than 170,000 acres of forests to their forest domains, or about 1,375 acres per year.

During the war considerable lumbering was done in Czechoslovak forests, but not to the extent of materially reducing the whole or impairing their usefulness.

In the Bohemian lands (Bohemia, Moravia and Silesia) the needle forests predominate. The pines and firs cover 78 per cent of the forest area, the leaf timber 9.1 per cent, and the mixed about 12.9 per cent. In Slovakia and Carpathian Russia, the new territories, it is



MUNICIPAL FOREST LANDS

In many cases the municipalities of Slovakia materially reduce or entirely abolish taxation by profitable lumbering operations on their holdings.



A WINTER SCENE LIKE FAIRYLAND

Forest in Bohemia covered with a heavy snow would, if more conveniently located, attract thousands of curious tourists.

fits to be derived enured to the foreign nobility and the wealthy owners, when the mere walking through one of these private forests was presumptive evidence of a wrongful intent. Of the vast estates held by individuals about 64.35 per cent of the whole in Bohemia, were owned in parcels larger than 1,250 acres in extent, while minor holdings, those less than 1,250 acres in area were held by the poorer classes.

A slightly different condition prevails in Slovakia. Here the state owns about 750,000 acres, municipalities hold 2,000,000 acres, and private owners have 2,250,000 acres. This is the entire for-

est area of Slovakia, comprising about 5,000,000 acres. In many instances the municipalities of Slovakia were enabled to materially reduce or totally abolish direct taxation through lumbering operations on their holdings.

A novel feature of Czechoslovak forest development is the principle that the annual growth must equal or exceed the annual cut. This is a wise and farsighted policy. It is estimated that 6,600,000 cubic meters of fire wood and 9,400,000 cubic meters of commercial timber are cut yearly. The quantity used for fuel during and since the war will be greatly reduced, in the very near future, through stimulated production of bituminous coal, lignite and oil. At the pre-



TREES AND NOT ICEBERGS

This might readily be taken for a photograph of ice hummocks in the Polar region, but it readily is a group of trees in Czechoslovakia, covered with snow.

vailing prices for lumber competent authorities estimate the value of the annual timber cut to be about \$120,000,000.

The policy now pursued in lumbering operations is to allow the cutting of only mature timber. On the other hand it restricts the cutting of timber to such quantities as are added to standing timber. That is, if the increase in standing timber in a given year amounts to 20,000,000 cubic meters, then the cut for that year may be about the same quantity. If it is more or less the cut must correspond.

It is well to point out some of the main features of the laws governing the



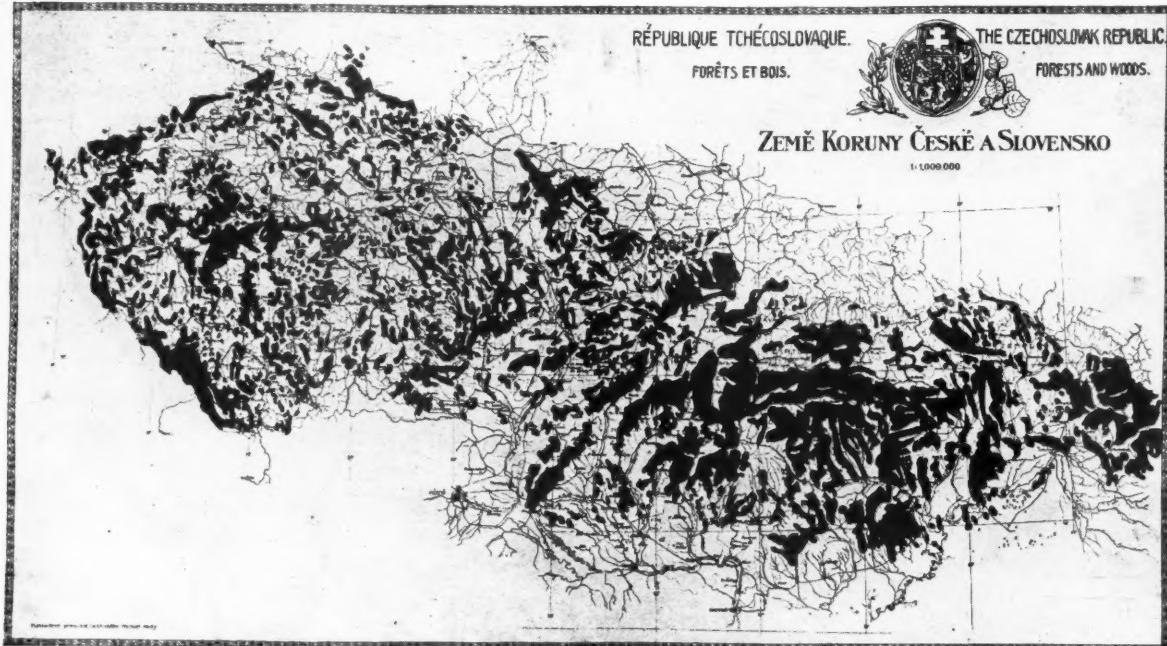
STARK SENTINELS ON THE BORDERLAND

Like soldiers on guard, the trees stand vigilant on the borders of the new European Republic, Czechoslovakia.



SNOW PICTURES IN A FOREST IN CZECHOSLOVAKIA

Before the world war, the foreign nobility and wealthy owners of these forests considered that the mere walking of unauthorized persons through these forests was presumptive evidence of a wrongful intent and provided punishment accordingly.



THE BLACK MARKINGS ON THIS MAP SHOW THE FORESTS AND WOODS OF CZECHOSLOVAKIA

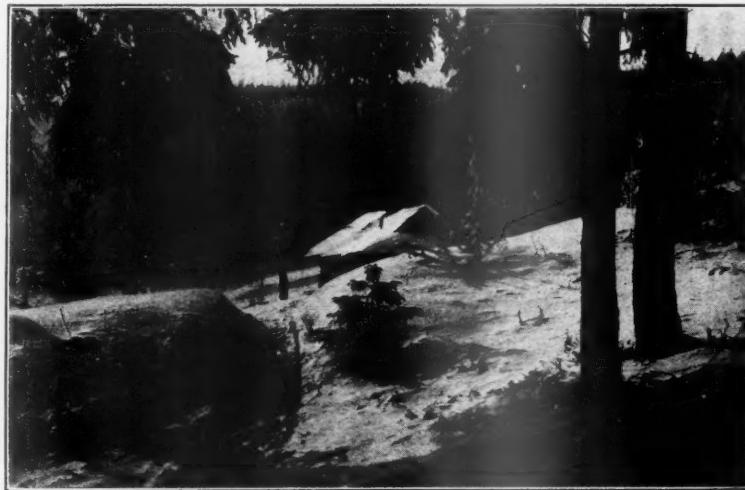
About thirty per cent of the new European Republic, or some 12,500,000 acres are given over to forest cultivation. The ownership is divided among individuals, municipalities, charitable institutions and the government.

Czechoslovak forests. Without official sanction, no soil once used for forest purposes may be used for any other; all lumbered areas must be reforested within five years; no forest may be wilfully destroyed, or cut in such a way as to impair its usefulness for forest purposes. Regarding fire protection, the laws further provide that owners must maintain efficient and sufficient number of trained foresters and wardens; an acceptable number of fire prevention devices, provisions for the extermination of injurious insects, and against trespassing.

While nearly all of these regulations were enacted before the present republic came into existence, the more important provisions have been adopted by the present government. However, the Czechoslovak people are awake to the importance and economic necessity of maintaining their forests on such a plane as will yield the best results. So that one of their most precious possessions, the forest, may be properly safeguarded, a commission headed by Dr. Charles Siman, Chief Forester, is now engaged in codifying the forest laws which are expected to be second to none. This commission is also framing regulations for the intensive development of forests to assure a sufficient timber supply for the future. Czechoslovak forests are supervised by the Bureau of Forestry, which is a part of the Department of Agriculture. All forests

are subject to the authority of this agency. It is also proposed that all forest estates over 1,250 acres in extent shall become a part of the public domain and be scientifically cultivated and cut.

It must not be assumed that forestry is taken lightly by the Czechoslovak people. Their woodworking industries are dependent upon domestic woods. Therefore, numerous schools for the proper education of foresters and training assistants were established. The College of Forestry is in Prague. This is a post-graduate institution which receives students who have graduated from the forestry high schools. The high schools are conveniently located in Zakupec (Bohemia), Hranice (Moravia) and Stavnici (Slovakia). Elementary forestry schools are found at Pisek, Cheb and Budweis



A FORESTERS HOME IN BOHEMIA

Cutting of only mature timber is allowed, and the cut must equal only the amount of new growth and no soil once used for forest purposes may be used otherwise except by government sanction.

(Bohemia), Jennice (Moravia), and Liptova Hradek (Slovakia). These are state institutions but numerous private schools are also found. In the high and elementary schools courses of one year are provided for men in practical forestry. Thus the country is constantly educating its youth in forest cultivation. With them it is a serious business and profession. They devote their lives to it, their industries are dependent upon it, and they see to it that future generations are abundantly provided with one of our most necessary necessities—timber.

FIRE PREVENTION SLOGANS FOR SMOKERS

• Don't drop FIRE when you smoke in the woods, nor throw it out along the road. Keep the forests GREEN!

DANGER! Matches, pipe coals, cigar stubs, and cigarette ends start many forest fires. Help protect woods, streams, scenery.

DON'T START WHAT YOU CAN'T STOP! Be careful with fire in and near the forest.

FIRE IS DANGEROUS! Be careful when you smoke in the woods.

LOOK OUT! When you smoke in the woods, don't start a forest fire.

BE CAREFUL! Don't start a fire in the woods when you begin or end your smoke! Be sure your match, cigarette or pipe is out.

YOUR CO-OPERATION in order to keep down forest fires is asked. Break your match in two. Knock out your pipe ashes into your hand. Don't drop a burning cigarette.

FOREST FIRES cost millions a year. Don't start one.

DON'T THROW FIRE AWAY in the woods or along the road.

HELP PREVENT FIRES

FIRE PROTECTION AND MORE PUBLIC FOREST LAND

BY CHARLES LATHROP PACK

[Extracts from an address by Charles Lathrop Pack, president of the American Forestry Association, at the annual forestry conference of the Society for the Protection of New Hampshire Forests, New London, New Hampshire, August 24, 1920.]

"ONE year ago at a forestry conference, at Bethlehem, New Hampshire, I had the pleasure of speaking on a national forest policy. I recall that I made a statement that we all believed a national forest policy was absolutely necessary but that many of us differed regarding detail. I said that in my humble belief one of the first essentials was an adequate fire protection program and I advocated getting together on the subject of fire protection and seeing what could be accomplished in that direction as a first step. To my surprise a good friend, one of the leading professional foresters of the United States, intimated afterward that I was not in favor of a forest policy because I advocated only fire protection.

"A year's discussion and sober thought has, I believe, convinced foresters generally that a very large percentage of a national forest program is fire protection, and it is my earnest hope that Congress will, before long, pass legislation making it possible for the Government to co-operate with the States in fire protective work of a character and extent adequate to our practical needs. When that is done the first great step toward a national forest policy will have been achieved.

"Nearly ten years have elapsed since the passage by Congress of the so-called Weeks Law, providing for the purchase by the Federal Government of forest lands on the watersheds of navigable streams and for the financial co-operation of the Federal Government with the individual States in the protection from fire of such watersheds. The American Forestry Association and the Society for the Protection of New Hampshire forests were largely instrumental in securing the passage of this legislation, which marks one of the most important milestones in the progress of this country toward the protection and perpetuation of its forest resources. We are now on the threshold of still greater developments, in which I take it for granted that all of us wish to play an equally important part.

"During the past few years the necessity for forest conservation, both for our safety in time of war and for our well-being in time of peace, has been more forcibly impressed on the people of the country than ever before. As a result the movement for the adoption of a thoroughly comprehensive, nation-wide forest policy has gathered such momentum that we have passed the point where it is sufficient to discuss the problem in glittering generalities. We have at last reached the stage where it is appropriate to discuss the specific legislation necessary to accomplish our purposes. In the recent report made by the Forest Service on timber depletion and related subjects known as the 'Capper Report,' concrete suggestions were made regarding the Federal legislation needed in the immediate future. The two first

and most important of these deal with forest fire protection and the expansion of Federal forest holdings. The need for legislation along these lines has been further emphasized by the Chief Forester, Colonel W. B. Greeley, in recent addresses, and I wish to invite your consideration of them today for a few moments.

"It is worth noting that both of these points are covered in the original Weeks Law of March 1, 1911, so that in a way what we are seeking today is merely an expansion of that fundamental legislation. What we need now is to broaden its scope and increase the appropriations provided under it. The current appropriation for the Forest Service carries \$125,000 for co-operation by the Federal Government with States in the protection from fire of forest lands on watersheds of navigable streams. This amount should be increased to an annual appropriation of at least \$1,000,000 and the provision restricting its use to watersheds of navigable streams should be eliminated. Authorization should also be granted for the use of the fund to work out the most effective methods of handling various classes of timber land and to conduct such other investigative and extension activities as the Forest Service might find it desirable to undertake in co-operation with any of the States. With an appropriation of this size and with authority to expend it wherever and however it is most needed, we should be able to make real progress in perpetuating the forests by protecting them from their most deadly enemy—fire.

"I do not need to argue the necessity of such an appropriation before a gathering of this sort. You know as well as I that our mature forests are not only being wiped out by destructive conflagrations and by smaller but none the less destructive fires, but that the reforestation of cut-over lands is being prevented by these fires and hundreds of thousands of acres of land which should be producing valuable timber are being converted each year into desolate wastes. We are told by the Forest Service that according to the latest information available there are 81,000,000 acres of forest land, nearly one-fifth of the total forest area of the country, on which there is little or no forest growth of any value. This enormous area of waste land is equivalent to the combined area forests of Germany, Denmark, Holland, Belgium, France, Switzerland, Spain, and Portugal.

"Our standing timber is being cut and destroyed by fire, diseases and insects, more than four times as fast as new timber is being grown. In the case of saw-timber alone the destruction is more than five and one-half times the growth of such material. What this means to the nation in the way of higher prices for forest products and of unstable industrial development following the cutting out of first one region and then another, is too obvious to require repetition. You are

all familiar with the old story of local timber depletion and the depressing influence which it exercises on the economic and industrial life of the entire region. I am not an alarmist, but I should fail to perform my plain duty as President of the American Forestry Association were I not to tell you frankly that we shall in no remote future find ourselves in a decidedly uncomfortable, not to say critical, situation unless we put our idle forest lands to work.

"The pity of it all is that our present failure to perpetuate our forests is so unnecessary. We have ample areas of lands not better suited for other purposes to make ourselves indefinitely self-supporting in the matter of our requirements for forest products. All that we need is to handle them properly. Many factors, of course, enter into the problem of producing the maximum supply of wood and of utilizing it in such a way as to insure continuity of industry. Questions of taxation, insurance, silviculture, forest management, and wood utilization, are all involved, but more important than any of these in our present stage of development is the problem of fire protection. According to Colonel Greeley, adequate fire protection would solve 75 per cent of the difficulties by which we are now confronted in attempting to keep our forest lands productive. A large part of the other 25 per cent involves the practice of correct silviculture, and it is only reasonable that in co-operating with the States the Forest Service should be authorized to insist, as a basis for financial assistance, upon the passage of State legislation making it possible to require reasonable standards in the methods of cutting and utilizing the forest and of disposing of the slashings, wherever these are important factors in maintaining the productivity of the land.

"Altogether there are some 315,000,000 acres of State and privately-owned forest lands in the protection of which the Federal Government should co-operate. At present more than one-half of this area is almost wholly unprotected, and of the remainder existing protection is to a considerable extent far from adequate. If these lands are to be kept productive there must be a tremendous expansion in our present fire protection activities on the part of all of the three principal agencies concerned—the Federal Government, the States, and the private owners. The first point of expansion is the passage of legislation authorizing the Federal Government to spend a million dollars a year for this and related purposes in co-operation with the individual States. Obviously State legislation along similar lines is essential and should go hand in hand with Federal legislation. Prompt passage of the latter is highly desirable since it would undoubtedly prove the most effective stimulus possible for State action, not only because of the moral effect of a good example, but because such action would be necessary to enable the States to take advantage of the offer of Federal funds to supplement their own appropriations.

"Fire protection should be accompanied by a marked increase in the extent of publicly owned forests. The

purchase of lands by the Federal Government which was initiated in 1911 under the Weeks Law should be continued with an annual appropriation of not less than \$2,000,000. As in the case of fire protection, present restrictions on the use of this appropriation only on the watersheds of navigable streams should be removed and the Forest Service permitted to purchase other forest lands in cases where this may be advisable. Primary emphasis should, of course be laid on completing the original program for the protection of the watersheds of navigable streams through the acquisition of about one million acres in New England and about five million acres in the Southern Appalachians; but in addition to this the Government should acquire forest lands in all the principal forest regions where areas suitable for Federal management can be obtained. The extension of National holdings in this way is sound public policy because it makes possible the consolidation of existing holdings, because such areas serve as models to be followed by private owners in the management of their lands, and because to a very considerable extent the growing of large-size timber will undoubtedly come to be more and more a public function.

"At present about one-fifth of the forest land of the country is publicly-owned, mainly by the Federal Government. The Chief Forester has expressed himself as in favor of the extension of such ownership until the public owns half of the timber-growing land in the United States well distributed throughout the principal forest regions. Without attempting to pass upon the exact per cent which should eventually be acquired by the public, I think we can all agree that every encouragement should be given to the States and municipalities to acquire forest land and that the Federal Government must take the lead in this respect. It goes without saying that in all Federal acquisition local communities should be equitably compensated in some way for the tax returns of which they are deprived when the Government takes over the land.

"So far the National Forest Reservation Commission has approved for purchase under the Weeks Law nearly 2,000,000 acres of forest land at an expenditure averaging approximately \$5.30 per acre. Not only have these lands proved to be a good investment from the standpoint of watershed protection, the primary purpose for which they were acquired, but they have also demonstrated that financially they will be an excellent investment. Moreover, from the broader standpoint of the National welfare as a whole, it must be recognized that under present conditions Government ownership is practically the only effective means for preventing the exhaustion of old growth timber of high quality and for restocking many denuded areas. There is every reason why the program of Government purchases, which has been interrupted by the failure of Congress to appropriate funds for the purpose, should be renewed on a still larger scale than before. Two million dollars a year is certainly a sufficiently modest sum to set aside

in an investment which will not only yield satisfactory returns from the financial standpoint alone, but will materially assist in enabling us to meet indefinitely our own requirements for wood, with the permanency of industrial development which this implies.

"Speaking for the American Forestry Association, I can say without reserve, that the Association is heartily in favor of the prompt enactment of legislation along

the lines discussed. I feel confident that your interest in the matter is equally vital and that through the earnest co-operation of all concerned it will prove possible to translate these two foremost measures, which together form the keystone to our national forest policy, from the realm of academic discussion into a program of action based on the solid foundation of legislative enactment."

SPLIT WOOD SECTION REVEALS INITIALS CUT ALMOST A CENTURY AGO

AT the suggestion of Mr. Alfred Gaskill, State Forester of New Jersey, I enclose a photograph of a section from a beech tree cut along the bank of the Delaware River in January, 1885, which shows a most interesting development," writes Henry T. Moon, of Morrisville, Pennsylvania.

Careful examination and count at the laboratories of the New Jersey Forestry Department shows the growth rings would indicate that the tree was cut in 1886 instead of 1885, but the only record available concerning the section, is taken from a former resident as follows:

"A section of a tree cut from the bank of the Delaware River in Pennsylvania, one mile above Morrisville.

The tree was cut in January, 1885, and this piece accidentally split open while being cut into firewood."

Mr. Gaskill, in commenting on the section, writes as follows: "Our count of the growth rings indicates that

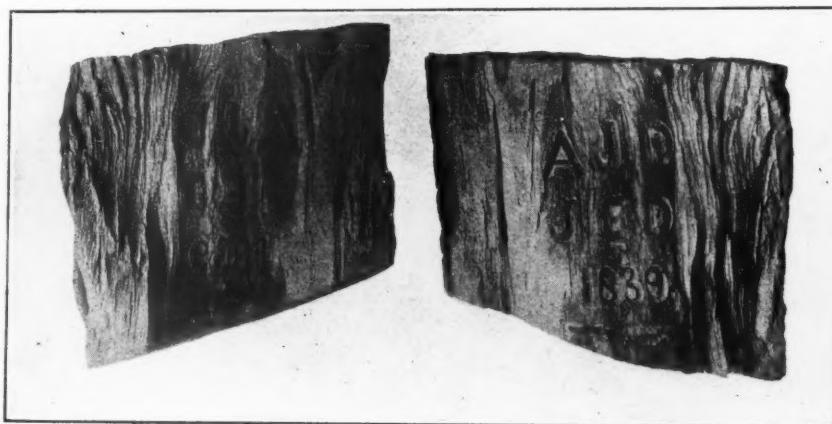
the tree was cut in 1886—not 1885, though it is possible that your record is more trustworthy than our count.

"It has been observed that on the opposite side of the section are two other initials which show through the bark. By careful sectioning they might be revealed.

"My suggestion that you publish this material is renewed, because it furnishes the best example I ever saw of the trustworthiness of a record of this kind, as well

as the biological fact that in the growth of a tree artificial irregularities determine subsequent development. Careful examination indicates that the initials were cut when the tree was about sixty-seven years old."

The specimen is the property of Mr. Henry T. Moon, Morrisville, Bucks County, Pennsylvania, having been given to him in 1918 by Mrs. Mary W. Ridge on whose property the tree was cut, and who disposed of it when breaking up her home and leaving the farm.



Photograph by Grant Castner.

AN INTERESTING SECTION CUT FROM A BEECH ON THE DELAWARE RIVER

The initials were cut, as indicated, many years ago, and were only revealed when the piece split open after the tree was taken down and when it was being cut up for fire wood.

NO SUBSTITUTE FOR HIGH-GRADE WOODS

NO substitute has been found for the high-grade hickory and ash required by handle makers and the vehicle and agricultural implement industries. The supplies came principally from the South where the most accessible supplies have already been cut. So scarce has the supply become that large firms are literally combing the territory to secure material. It is said that five years more will see the end of the supply of the northern upland ash, which is preferred to the swamp-grown variety of the lower Mississippi Valley. The demand for handles is so

great that manufacturers can not meet it. Any price necessary for raw material is being paid. Competition with other industries using the same woods, particularly the manufacturers of automobile wheels, is keen. Wholesale prices have more than doubled and retail prices are in about the same proportion. The small handle factory is being gradually eliminated, and there is said to be a steady drift toward the concentration of handle manufacture by large concerns and the disappearance of local industries.

THE COCOA-NUT PALM

THE cocoa-nut palm (*Cocos nucifera*) more properly coco, also mentioned under cacao and chocolate, is one of the most useful trees in the world. It is said by the people whom it furnishes with nearly all the necessities of life that it has as many uses as there are days in the year; but that seems to be an under estimate; for surely three hundred and sixty-five necessities would never meet the demands of a modern up to date man or woman of the temperate zone. The cocoa-nut palm is a magnificent tree often reaching a height of one hundred

palm plantations. The Malay peninsula is fringed with these graceful trees. They are everywhere over both the East and West Indies and tropical America. The huge triangular nuts are water proof, as though made to navigate the seas and reach every shore, which they surely have done, for on every island and coral islet of the Pacific Ocean they are found. They reach their greatest vigor by the sea; on the sea-shore they lean towards the water as though to send their seed adrift for other lands. The spathe or flower case is of a hard



THE UNIQUE BEAUTY OF THE COCOANUT PALM MAY BE FULLY APPRECIATED IN ITS NATIVE HOME, CEYLON, WHERE IT FRINGES A HUNDRED MILES OF SEACOAST

feet and crowned with wide-spreading fronds often twenty feet in length. The frond consists of a strong mid-rib which terminates in long slender leaflets, giving the entire frond the appearance of a gigantic feather. Among the massive leaves growing from the main stem is the fruit, usually in clusters of from ten to twenty nuts, from eight to twelve inches in length and from six to eight inches in diameter. This palm is so generally spread over the tropical world that its original habitation is not known. It luxuriates in the sea air, and abounds along the east and west coasts of Southern India. The west coast of Ceylon from Colombo southward for over one hundred miles is a dense wilderness of cocoa-nut

woody substance from four to five feet in length, and when this case bursts to release the blossom it is like the report of a gun. I first heard the bursting of cocoa-nut flower cases when hunting in the jungles of the Amazon. I asked my Indian guide if there were other hunters near. Of course he replied: "The bursting of cocoa-nut flower buds." These huge flower cases are tapped at the base for the sweet sap they contain. The sap is boiled down into an excellent sugar; it is fermented into arrack, the apple-jack of the tropics. The flower bursts out in branching spikes five and six feet in length. The flower stalk when dried is used for torches; the leaf stalk for fencing, the leaves for thatch, for

umbrellas, for table ware (plates and other dishes). The nut when green is food and drink; when ripe, its husk yields the coir fibre from which mats, ropes, cordage, brushes and woven coir matting are made. The inner hard shell is made into cups, dippers and other vessels; the kernel is the copra of commerce used in making confections. From it the valuable commercial product called cocoa-nut oil is pressed, and from the oil candles,

butter and soap are made. An average yield of a tree is sixty nuts. A thousand nuts will produce five hundred pounds of copra, or twenty-five gallons of oil. The climate of Ceylon is well adapted to all kinds of palms and embraced in her many plantations there are said to be over thirty million trees. The wealth of the Ceylonese is usually estimated by the number of cocoa-nut trees they own. Native boats from the Maldive Islands some-



A COCOANUT PLANTATION PROTECTED AGAINST NUT THIEVES. NOTE THE DRIED FRONDS PLACED ON THE TRUNKS OF THE TREES, WHICH WILL CRACKLE UNDER THE FEET OF THE MOST NIMBLE CLIMBER AND ATTRACT THE ATTENTION OF THE GUARD

times arrive in Ceylon, built, rigged, provisioned and laden with the produce of the cocoa-nut palms. A shipwrecked crew was cast upon the South Sea Islands where the party remained for several months living solely on cocoa-nuts and a little broiled fish; when they returned they had all increased in weight.

The by-product is oil-cake which is of great value. The trunks of the trees are used for innumerable purposes besides house building and furniture, and the wood in Europe is called porcupine wood because of the vascular growth resembling the quills of that animal. Mature cocoa-nuts fall from the trees; but planters cannot always

value; next to the cocoa-nut palm comes the palmyra, the value of whose exports alone reach half a million dollars, while those of the cocoa-nut exceed five million dollars, and the export value is but a fraction of the value in the domestic uses. I am referring now to the small island of Ceylon. Marvelous as are the many varied uses of this tree I have yet to dispute its claim to the first place in economics, and that when I consider the bamboo.

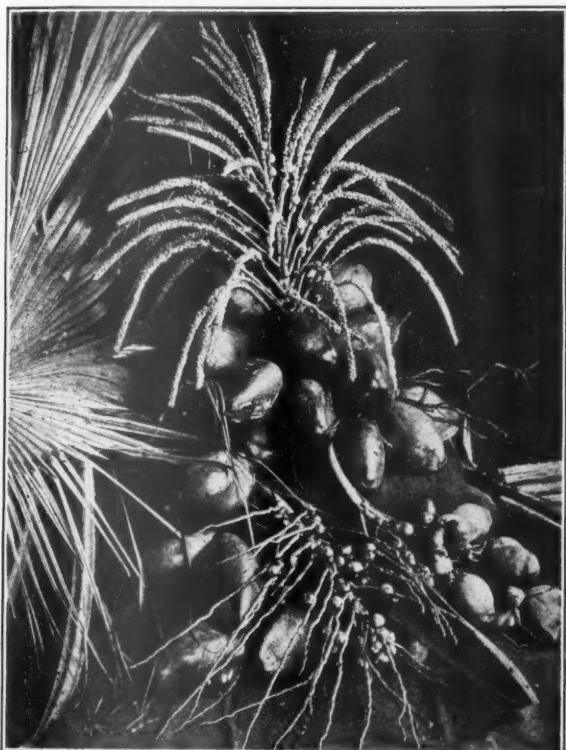
—James Ricalton.

HEART ROT IN WESTERN HEMLOCK

THE United States Department of Agriculture is interested in the conservation of the timber supplies of the country and is urging preventive measures against decay which is prevalent to an alarming extent in the hemlock forests of the west.

"It has been generally supposed," says a bulletin issued recently by the Department, "that lumber from western hemlock is likely to decay rapidly after it has been sawed. Such early decay is usually due to heart rot present in the growing tree before it is cut; its effects are particularly noticed as the lumber dries out, even though there is no progress in the decay itself.

"This heart rot is known to sawmill men as stringy brown rot, and to the woodsmen generally as Indian Paint fungus, mainly because the Indians of the Northwest used to use the powdered orange red fungus for war paint, and also made dyes of it."



THE LEAF, BUD, BLOSSOM AND FRUIT OF THE COCONUT PALM

wait for them to fall, and there is no pole or ladder to reach one hundred feet; climbing is the only way, and cocoa-nut tree climbing is a trade in cocoa-nut countries. Professional tree-climbers have the speed and agility of monkeys. To facilitate the operation they place a strong loop of coir rope around the feet near the ankles; this enables them to grip the tree securely and ascend the highest trees with amazing alacrity. The climbers are also tree tappers, that is, tapping the cocoa-nut bud for the sap from which arrack is made.

Cocoa-nuts being the native wealth, cocoa-nut thieves are not uncommon. The owners of plantations have a unique system of thief alarm: dry fronds are bound to the tree from the ground upwards for about twenty feet; and it is impossible for the thief to remove or climb over these without making a great noise which arouses the watchman who is never far away. There are many other kinds of palm trees in Ceylon of great economic



A NOVEL SEAT

A LONG WHILE AGO A HUGE MILLSTONE THAT HAD BEEN USED IN A NEW YORK VILLAGE WAS DISCARDED. IT LAY ON THE GROUND FOR MANY YEARS UNTIL ONE DAY A TENDER TREE POKED ITS HEAD THROUGH THE HOLE IN THE CENTER OF THE STONE. THE TREE CONTINUED TO GROW AND SOON FILLED THE HOLE SO TIGHTLY THAT THE MILLSTONE WAS HELD UP BY THE TREE. THIS EFFECT WAS NOT PRODUCED, AS SOME HAVE THOUGHT, BY THE TREE LIFTING THE STONE TO THIS HEIGHT, A THING WHICH IS IMPOSSIBLE WHILE A TREE GROWS. THE STONE HAD BEEN HELD UP HIGH ENOUGH TO SIT ON COMFORTABLY BY OTHER MEANS, AND WHEN THE TREE ONCE HELD IT UP, THE SUPPORTS WERE REMOVED.

THE USES OF WOOD

WOOD FOR MUSICAL INSTRUMENTS

BY HU MAXWELL

MANUFACTURERS of musical instruments select wood with several objects in view, depending upon the kind of instrument and the particular part of that instrument which the wood is to supply. The maker of one kind may want a wood of extra strength and unusual stiffness in order to give the necessary rigidity. Another may desire a kind that behaves well in joinery and is not inclined to excessive shrinkage and warping. Sometimes a wood is wanted which possesses high resonance. Or, perhaps, the maker of veneers intended for use in the bodies of large musical instruments, looks for a wood for the cores or inner sheets of built-up panels, and he selects one which holds glue well and is not much inclined to warp and check during changing conditions due to heat and moisture.

Beauty of figure or attractive color may be the chief quality sought by the maker of the outer parts of instruments, the portions which are seen and by which many purchasers judge the merit and value of the instrument. If this is the manufacturer's purpose, he is interested in none but beautiful woods and selects those which are most pleasing.

Few industries are more

KIND WORDS FROM THE MAKER OF THE FAMOUS STEINWAY PIANO

"We desire to become life members of the American Forestry Association and hand you herewith our check for \$100.00 in payment of dues.

"As manufacturers in wood products of the highest quality, we feel that you are doing a splendid work towards the preservation of our trees and forests and we sincerely hope that the splendid propaganda that you are making in this good cause will eventually bear good fruits."

WILLIAM R. STEINWAY.

exacting in choice of material, yet many qualities and kinds are employed. Some are rare and costly, others cheap and common, but each has its proper place to fill for the manufacturer of instruments ranging in size and scope from the piano to the harmonica, utilizes something from nearly every part of the forest. One wood may be highly colored and richly figured, another as plain as basswood. Those strong, like maple and birch, are in demand, and next to them such weak species as buckeye and white pine may find a place, and it cannot be justly claimed that the one is more essential than the other. Those which transmit sound and are known as resonant woods, like spruce and southern white cedar, are employed in the same work with dull - sounding woods like oak and gum.

Selection goes much farther even than this in the choice of material for the manufacture of musical instruments. The annual demand by all makers in the United States exceeds 260,000,000 feet, and if all the species were carefully set apart and counted, the number would probably exceed one hundred. In statistics the woods are generally grouped according to



ONE OF AMERICA'S FINEST CABINET WOODS

An ordinary observer would probably pronounce this piano to be of Circassian walnut, so nearly is that wood resembled. It is, however, red gum from the forests of the South. Its grain and figure are so much like those of Circassian walnut that one often passes for the other. Some insist that red gum is America's finest cabinet wood. If not the finest, few surpass it.

genus rather than species, several being included under one name, as oak, ash, elm, maple, and spruce.

Both softwoods and hardwoods are employed in this industry. Ten of the former are on the list, all of which are native of the United States. Not a foot of imported softwood is used, unless possibly a little spruce from Canada for sounding boards, but none such is shown by the records. The total annual demand for softwoods exceeds 43,000,000 feet, as follows:

Spruce, 29,144,150; white pine, 9,394,820; yellow pine, 2,107,994; sugar pine, 1,004,400; hemlock, 615,600; Douglas fir, 480,400; redwood, 286,200; balsam fir, 101,100; cypress, 70,000; Cedar, 17,500, total, 43,222,464 feet.

In quantity spruce exceeds the other softwoods in the above list. Though it is named as though it were a single species, several spruces are included in the group, the principal being the eastern red spruce that grows from the mountains of West Virginia to northern Maine, the largest supply coming from the two states named; and Sitka spruce of the northern Pacific coast. Some spruce of the black and the white species, from New England and the Lake States, and from the adjacent regions of Canada, contribute to the musical instrument industry,

the total spruce exceeding 29,000,000 feet annually.

The value of spruce in this industry is due chiefly to its resonant qualities. It is a musical wood. Peculiarities of growth make it so. It takes up and transmits vibrations more perfectly than any other wood that can be had in adequate quantities.

The scientific explanations of spruce resonance have not all been alike, neither are they all consistent. Agreement is pretty general, however, that the cause lies in the

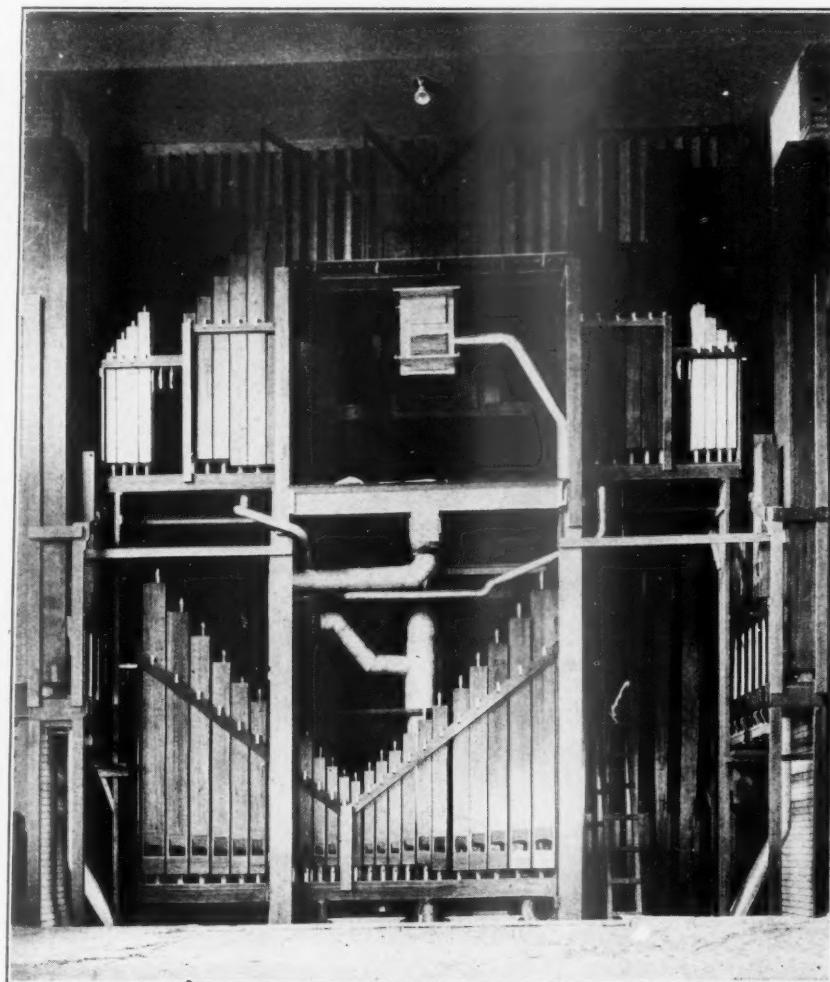
wood's long fibers and in their uniform and regular arrangement. The fibers vibrate like so many taut cords. Comparison might be made to a group of tightly-stretched strings, parallel and of equal length, each vibrating free from interference by the others, and all in unison, having been acted upon by the same impulse. Wood consists of fibers which may be compared to strings either parallel or interlaced. The most of those of spruce are parallel, hence their fine musical qualities. Most other woods have shorter fibers and they may not be arranged so

that they can vibrate freely, one interfering with another. Oak is a wood of that kind, and it is very poor material for sounding boards for pianos.

A apparatus has been used to test and determine the vibratory qualities of wood, and formulas and equations involving higher mathematics have been worked out to express values; but no scientific process has found out much more than has been ascertained by simple experiments with different woods by practical makers of musical instruments. When Philadelphia was a village of small houses and

wooden roofs, Gottlieb Mittelberger listened to the patter of the rain on the thin roofs of white cedar shingles and from the tones thus produced, he worked out the invention of the cedar pipes for his organ. He declared the musical sounds of that wood superior to those emitted by metal.

The most highly specialized use of wood, due to its resonance, is found in the piano sounding board. The finest spruce goes there, though occasionally other woods



THE INTERIOR OF A PIPE ORGAN

This view behind the scene is in the First Universalist Church in Detroit, Michigan. The fine organ is constructed wholly of California redwood. It is a rather new material for large musical instruments, and it has been selected because of the well-known unshrinkable qualities of redwood. In that respect it compares with mahogany.

have held the place. Southern white cedar was once more popular than spruce as sounding boards, but it is not so now.

The piano is not the only musical instrument which profits by the resonance of wood. The pipe organ does it, but probably not so much as formerly. Most pipes are now made of metal. The quality of wood in a violin has much to do in determining the value of the instrument. The old master makers of violins, like Stradivari, Amati, and Guarneri, selected their wood and prepared it with as much care as they bestowed on the actual shaping and joining. Maple has always been one of the finest violin woods, and it is nearly always combined with some softwood like pine or spruce.

Some of the finest working in wood is done in producing high class horns for talking machines and music boxes. The horn is a sort of sounding board, corresponding to that of the piano. There are very fine instruments which are made without wooden horns, but many persons claim that the wooden horn gives a softness and richness of the tone which is extremely rare.

The xylophone is a small musical instrument which does not rank very high in science or art. Its name is a

combination of two Greek words meaning "wood sound." The music which it produces is caused more by the vibrations of wood than is the case with most musical instruments which utilize the resonant qualities of that material. In most of them the sound is transmitted to the wood from some other medium, and is taken up and increased or purified, and is then passed on; but in the xylophone, short rods of wood, graduated as to length, are struck with a hammer, or in some other way are made to vibrate, and the tones are the result. Rods of different lengths are arranged to produce different tones. The manufacturer's success with this instrument, as with most others where the resonance of wood has an important function to perform, depends upon the care with which the wood for the rods are selected, shaped, seasoned, and mounted.

Formerly some very large bells were not provided with clappers to strike in the usual way, but as a substitute, beams of wood were swung on the outside, so geared as to strike the bells, end on, and produce the sound. It is not quite certain how much of the sound came from the beam and how much from the bellmetal; but the metal perhaps deserves most credit though the



A PIPE ORGAN BUILT OF RED GUM

The cabinet work of this fine instrument is of red gum, with little effort to display figured wood. Gum lends itself well to large panels and pilasters. Such are usually built up of veneer, with gum as the visible part. The wood's tone is brownish, and it is one of the handsomest in this country.



of the bell. Such apparatus is said not to be used outside of China at the present time.

Most softwoods listed in this industry do not owe their place to their resonance. For instance, much white pine and sugar pine are manufactured into keys for organs and pianos, but they are preferred for those places on account of their lightness and small tendency to warp, and not for any quality of resonance which they may possess. Such softwoods as hemlock, yellow pine, and cypress are demanded for the frames of large instruments to give the necessary strength without too much weight or at too great a cost; but these woods hold places in this industry other than as frame stock.

Hardwoods constitute eighty per cent of all the material furnished by forests to the manufacturers of musical instruments in this country. That figure alone tells the story of the importance of this class of woods along the line indicated. Measured in feet, there is much more softwood in the United States than hardwood—five or six times as much. But in kinds or species, hardwoods are far more numerous than the others. Manufacturers engaged in the industry under discussion use not only more kinds of hardwoods but a larger

kind of wood and the shape of the beam were carefully looked after as if they had much to do with the success

quantity. Five feet of hardwood go to these manufacturers to one foot of softwood. The list follows:

<i>Native Hardwood</i>	<i>Feet Used Yearly</i>
Maple.....	45,482,775
Yellow poplar.....	40,371,925
Chestnut.....	38,125,141
Oak.....	20,638,480
Elm.....	15,602,440
Birch.....	12,349,055
Basswood.....	10,968,180
Red gum.....	9,243,825
Black walnut.....	4,991,808
Beech.....	4,180,000
Ash.....	2,377,332
Cottonwood.....	2,351,000
Tupelo.....	460,000
Cherry.....	334,180
Sycamore.....	304,600
Butternut.....	98,100
Buckeye.....	6,000
Holly.....	3,580
Hickory.....	225
Total.....	207,894,636

Maple leads all others. It is not because this wood has some special



Courtesy C. Bruno and Sons.

GREAT CARE MUST BE EXERCISED IN THE SELECTION OF WOOD FOR VIOLINS

The quality of wood in a violin has much to do in establishing the value of the instrument. The old masters selected their wood and prepared it with as much loving care as they bestowed on the actual shaping and joining.

Douglas fir, yellow pine, and cypress are demanded for the frames of large instruments to give the necessary strength without too much weight or at too great a cost; but these woods hold places in this industry other than as frame stock.

use which accounts for the large demand, but it is due to the general fitness of maple for many parts of musical instruments.

Most of its qualities are good ones, and it has many. It fills numerous places and does it well. It is an outside wood for show and an inside wood for strength. It is hard, strong, stiff, heavy, elastic, and handsome. Its chief place is for frames and braces, and its hardness opens the way for its employment as piano actions. A single piano does not require much wood for actions, but in the aggregate a large



amount is so used in the course of a year in the whole United States. It cannot be stated how much of the forty-five million feet of maple reported in the industry is converted into actions, but the amount is large. Where beauty is the chief consideration, maple meets the call. The figured wood, commonly known as birdseye, is well known and in wide use. This is not a separate species of maple, for birdseye occurs in all the species of that tree, of which there are several. Most birdseye is cut from the tree known as sugar maple, that from which maple sugar is made. No means exist for determining how much of the maple going into this industry is hard and how much soft, but it is certain that hard maple is used in



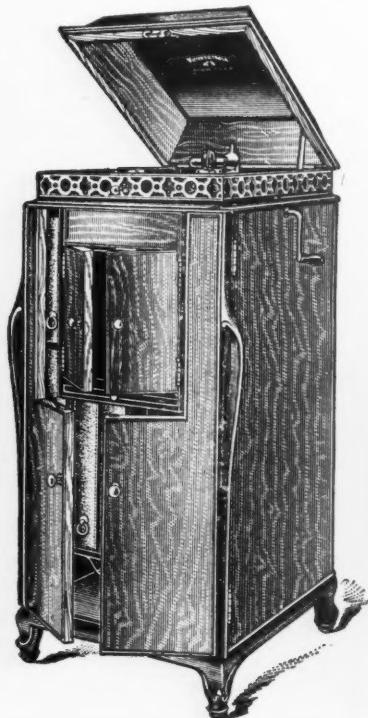
BLACK WALNUT DRUM

Various woods are used by drum manufacturers for the shells and hoops, among them being walnut, maple, mahogany, and rosewood. For a combination of lightness, strength, and resonance, wood is unequalled. (Photograph by Leedy Manufacturing Company, Indianapolis, Indiana.)

more progress has been made in giving that name to the tree in the woods, and particularly in city parks. An equally unsuccessful attempt has been made to fix on it the name "canarywood," in consideration of its yellow color; but that effort has come principally

from lumber dealers in Europe. It is a wood of general utility, like maple, and that explains the extensive use made of it. It is suitable for some part of nearly every musical instrument made of wood. It meets general demand and peculiar uses. It is excellent for cabinet work where closely-fitting joints are wanted. It takes a smooth, fine finish, and along that line it has few equals. Highest grade panels may be made of yellow poplar. The casual observer might not recognize the panels as being of this wood, but might suppose them to be cherry, rosewood, or ebony. It is successfully employed in imitating other woods. So smoothly may it be polished, and so perfectly does it take stains, that the finisher can put a cherry, ebony, or any one of many other finishes on it. Poplar has no distinctive grain of its own, and it is not necessary to cover up and conceal anything of that kind when trying to imitate some other wood.

Chestnut fills a much larger place in



much greater quantities than the soft. Most hard maple is cut from the common sugar tree.

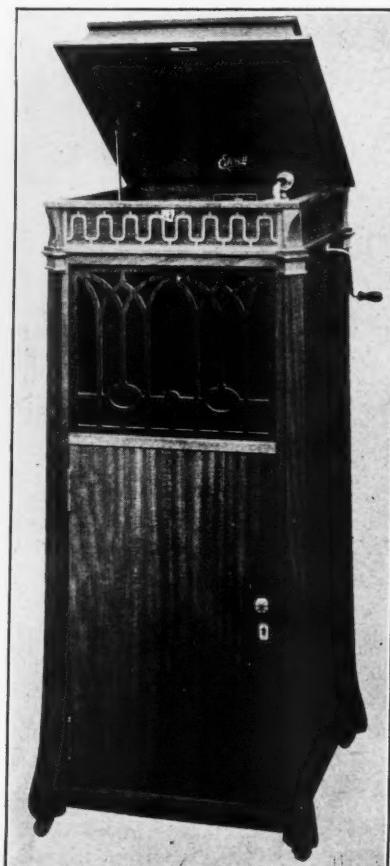
Yellow poplar stands second on the list, judged by the amount used in the industry. It is known as whitewood in some of the northern states, and an attempt has been made to fix on it the name "tulipwood." The name is nice enough, and from the point of view of the botanist it is appropriate, but the public has not taken kindly to this name for the wood, though a little



*Courtesy
C. Bruno and Son.*

MUSIC MACHINES ON WHICH FINE WOODS ARE USED

Sizes and styles of talking and playing machines are nearly innumerable; but no matter what the size and cost, wood is the essential material of which the cases are made. Numerous woods are used, but most are walnut, mahogany, and oak, though others are occasionally seen, both foreign and domestic.



this industry than most people suppose. Not much of it is seen in the finished articles, probably not one foot in ten. It has a grain and figure so distinctive and bold that their concealment by paints, stains, and varnishes is seldom attempted. It is the opposite of yellow poplar in that respect. The reason why chestnut is so seldom seen in musical instruments, though so often present, is that its largest use is for cores or the concealed, inner parts of veneer panels. The surface of such panels is of other woods, but the bulk is chestnut, covered and out of sight. White pine ranks with chestnut in that use—core of panels. Yet core stock is not the only place filled by chestnut in the musical instrument industry. It is a figured wood and is employed for visible as well as concealed parts. Its figure is formed by the annual growth rings, as is the common figure of ash and yellow pine. We have only one species of chestnut and only one of yellow poplar in this country.

Other figured domestic woods reported in this industry, in addition to chestnut and birdseye maple, are oak, red gum, black walnut, ash, and sycamore. Perhaps birch should be included, though figured birch is rather uncommon. Native woods listed in this industry, but which have little figure, are elm, basswood, beech, cottonwood, tupelo, and cherry.

The native figured woods most often seen are oak, red gum, and walnut. Oak has a figure due to yearly growth rings, and another due to medullary rays, exposed and brought into view by quarter sawing. These two kinds of oak are known to the trade as "plain" and

"quartered." Both figures are popular with musical instrument makers and sometimes one and sometimes the other is the fashion leader.

Black walnut's figure is by many considered the handsomest of all native woods. Yearly rings of growth contribute much to this figure, but the most delicate and artistic of the figures characteristic of walnut is independent of growth rings and is due to pigments in the fibers of the wood, dispersed in wavy lines, or in clouded

areas, or in somewhat irregular patterns. Contrast in the black and brown tones in the different areas is responsible for this figure. Other woods possess it in part, but none other of our native woods equals walnut in delicacy of this figure. Red gum is the nearest approach to walnut, but its colors are of lighter tone and the rings of growth are less prominent.

Manufacturers of musical instruments go ahead of nearly all other workers in wood in making the most of figured woods. Furniture makers are scarcely their equals in that respect.

Woods of fine color hold an influential place in the shops of those who make musical instruments. Such woods may display little figure or none. Their value is due to color. One of these is rosewood. Though this wood when freshly cut has the odor of roses, hence the name, that is of no consideration with those who use the material, because the odor has all departed long before the article made of the wood has reached the hands of the final purchaser. But the color remains. Much mahogany is valued for its color rather than its



AN ELABORATE PHONOGRAPH

The woodworker is at his best when he makes the cases of high-grade phonographs. The instrument shown in the above illustration is valued at six thousand dollars, a considerable part of which value is represented by the carving on the wooden case. (Photograph by courtesy of the Edison Company.)

figure. Ebony is another such wood. It usually has no figure, but it may be had in tones ranging from black to green, and in many shades between black and nearly white. Persimmon is ebony's nearest relative in this country, but its wood seldom has color enough to be valuable solely on account of it. Ebony is esteemed on account of its great strength and exceeding hardness, but if it is used by American musical instrument makers, it is listed under some other name, perhaps as ebony.

Prima vera is often called white mahogany, though it is not closely related to mahogany. Its grain suggests the name. The tree grows near the western coast of southern Mexico and further south, and it has not been long on the market. It is remarkable that the wood was offered for sale in lumber yards in San Francisco and Cincinnati before the existence of the tree was known to botanists. In color the wood resembles the yellow heartwood of the evergreen magnolia, the wood of which has recently appeared in markets as "golden mahogany of Louisiana." It is believed that several woods are marketed as prima vera which are botanically different.

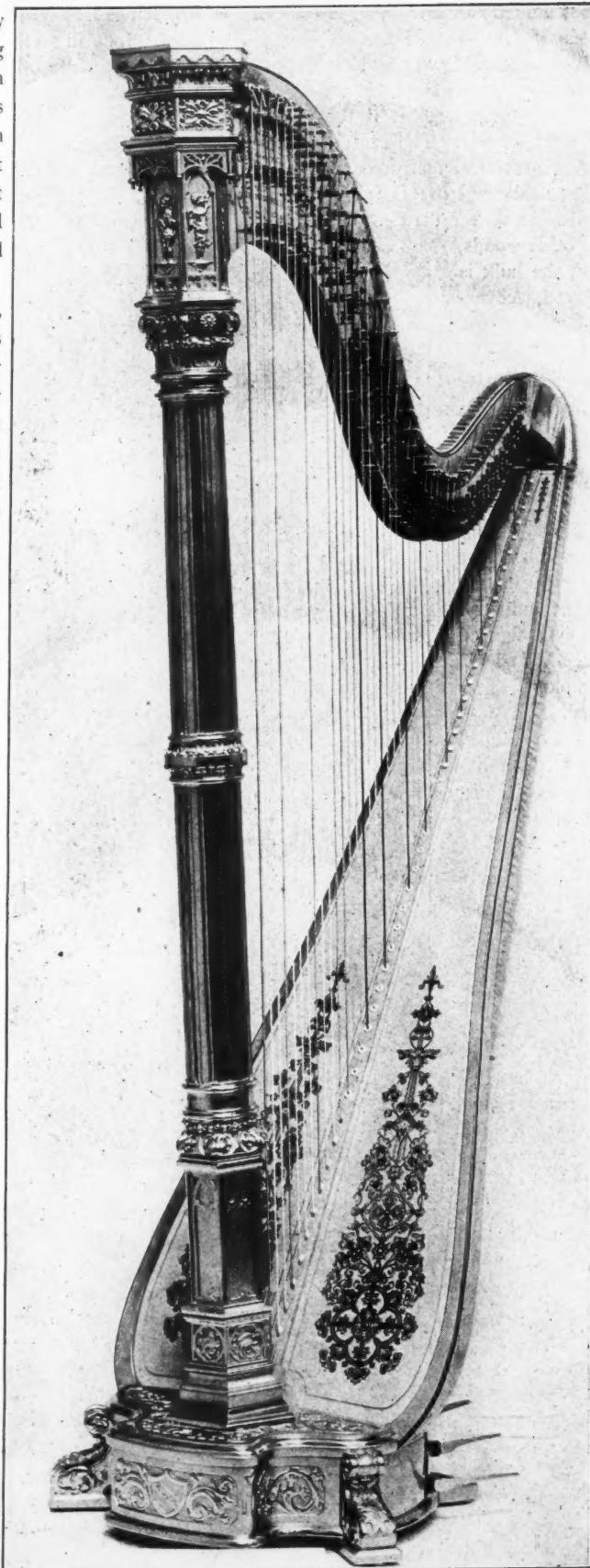
Furniture and musical instrument people value Spanish cedar more on account of its pale red color than for the slight figure it possesses. Cigar box makers like it for the odor it has, but that has nothing to do with its use elsewhere. The wood is very soft. It comes from Mexico and the West Indies, and it may be had in amounts as large as wanted.

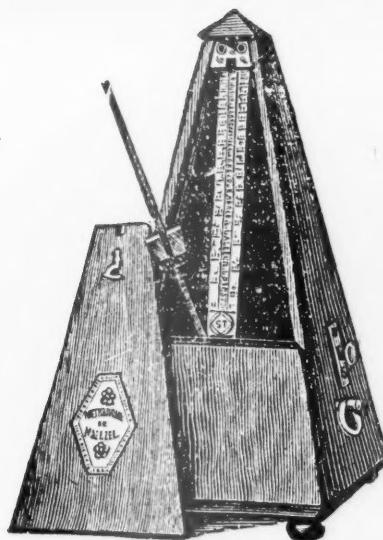
Satinwood's yellow or brown color is responsible for most of its value. Several species from America, Africa, and India are known as satinwood, but perhaps the only one entering into the musical instrument industry is the tree from the West Indies. In the Bahamas it is known as yellow wood. Its book name is *Xanthoxylum flavum*.

The United States produces a number of finely colored woods which are employed in this industry to a greater or less extent. In quantity birch leads

WOOD AND GOLD

The harp maker has carried the use of wood to the highest perfection. The sounding board and sounding body are of spruce and maple, the rest of the instrument being of metal. The metal parts of the harp shown here are overlaid with gold, the instrument being valued at \$10,000. This illustration was made particularly large so that the beautiful detail work in the design might be seen to better advantage. In selecting the spruce and maple for such a costly instrument as this, much material of high grade must be rejected because only the most perfect wood can be used. (Photograph by courtesy of The Rudolph Wurlitzer Company, Cincinnati, Ohio.)





THE LITTLE METRONOME'S IMPORTANCE

Size is not necessarily a criterion of importance. The metronome is a very small instrument, and by it the musician measures his time. It is usually made of cherry, walnut, mahogany or rosewood, and it is seldom or never made of any material except wood, but no great amount is required in its manufacture.

the others. Its reddish heart-wood is substituted for cherry and mahogany, par-

but the other parts of the instrument may be of mahogany. The use of cherry by musical



TAMBOURINE WITH WOODEN SHELL

Black walnut holds the place of honor in the manufacture of this artistic musical instrument, which might be classed as a little brother of the drum. (*Engraved from a photograph by the Leedy Manufacturing Company, Indianapolis, Indiana.*)

ticularly in pianos. It does not possess mahogany's grain or figure; but when both woods are finished with fillers and stains, it is often

instrument makers is rather large, and most of it finds a place because of its fine color and delicate luster. It goes into many kinds of instruments, including pianos, organs, and automatic players. The manufacture of the small instrument known as the metronome and used for the measurement of tones or notes, calls for cherry in preference to most other woods. The search of woods suitable for violin bows is active although no large quantity is needed. Some dealers guard as a business secret their source of supply of bow woods. Color, weight, and elasticity are essential. Dealers often sell what they call pernambuco wood for bows, but that name is applied to different woods from different continents.

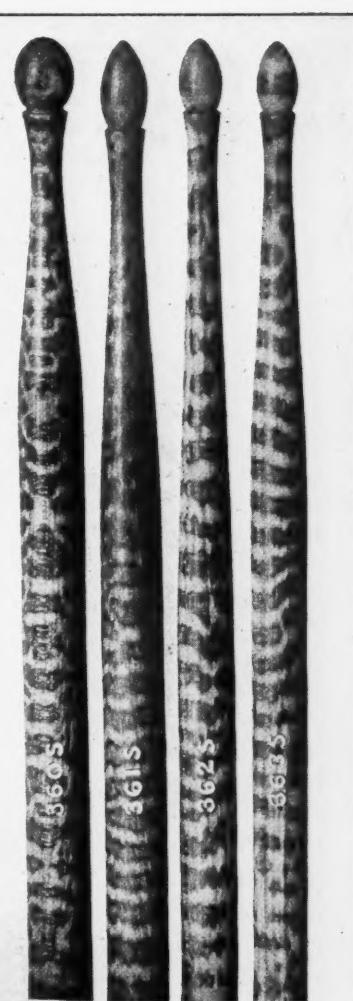
Rosewood has no figure except in rare instances, but its deep, rich color makes it valuable for certain kinds of musical instruments, especially for broad panels. Were it not so soft, it would doubtless have a much wider use.



THE XYLOPHONE

The resonance of wood gives this musical instrument its value and makes it unique. The bars are of Honduras rosewood, worked in sizes and lengths to give off the desired tones when struck. These instruments range from toys up to very fine articles. (*Photograph by Leedy Manufacturing Company, Indianapolis, Indiana.*)

difficult to tell one from the other. Birch is stronger than mahogany and for that reason it may serve as posts and spindles which are exposed to danger of breaking,



DRUMSTICKS OF TROPICAL WOOD.

These drumsticks are of snakewood, so called because of its striped appearance, and for the same reason it is sometimes known as letterwood. It comes from tropical America. (*Photograph by Leedy Manufacturing Company, Indianapolis, Indiana.*)

THE lumber industry of the United States now has its principal producing center in the Pacific Northwest, where the timber resources are located; it has been predicted that the pulpwood producing center of the future will be in Alaska and the Pacific Northwest, for the same reason.

SECRETARY of Agriculture Meredith believes that the development of the forest and hydro-electric resources of Alaska is a practical means of increasing the supplies of newsprint available for the United States, and therefore eventually lessening the paper shortage, now so acute.

TRAMPS THROUGH THE GULF STATES—II

BY R. W. SHUFELDT, M. D.

(PHOTOGRAPHS FURNISHED BY MRS. K. P. ANDERSON AND BY THE AUTHOR)

WHILE in southern Florida, you will certainly remember having seen specimens of that wonderful plant known as the Spotted Trumpet Leaf—a species related to our Pitcher Plant of the North, and quite as interesting. Botanists recognize it as *Saracenia variolaris*, and not long ago the writer received two magnificent specimens of it, by parcel post, from Mr. F. W. Walker, of Orlando, Florida. Both plants were photographed natural size by the writer, and exhibited at the Biological Society of Washington at one of its April sessions (1920). Subsequently the specimens were accepted at the United States Botanic Gardens, of Washington, D. C., and the Superintendent, Mr. George W. Hess, informed the writer that they had never had examples of the plant there before.

Nearly all the parts of the flowers of this species are of a pale grass green, which is likewise the case with the greatly elongated "trumpets" which represent the leaves of the plant. These, at their upper ends, inside and out, are generally spotted in short rows of pale, yellowish white spots, as shown in the illustration (Fig. 10). This latter was made natural size, on a six and a half by eight and a half plate, and shows, in the clearest possible manner, all the parts of the plant, including some of the dark brown and broken stalks of the leaves of the previous year.

In tramping through the wilds of such an elegant sub-tropical country as is represented by our Gulf States, one may very profitably devote a part of the time, after dark in camp, to the collecting and properly preserving for the cabinet at home a number of the beautiful moths that occur there at certain seasons of the year. The Luna Moth shown in Figure 11 is a splendid example of these, and a very favorite one. But then, there is a perfect host of others, some of the species being entirely confined to those parts of the country. Fre-

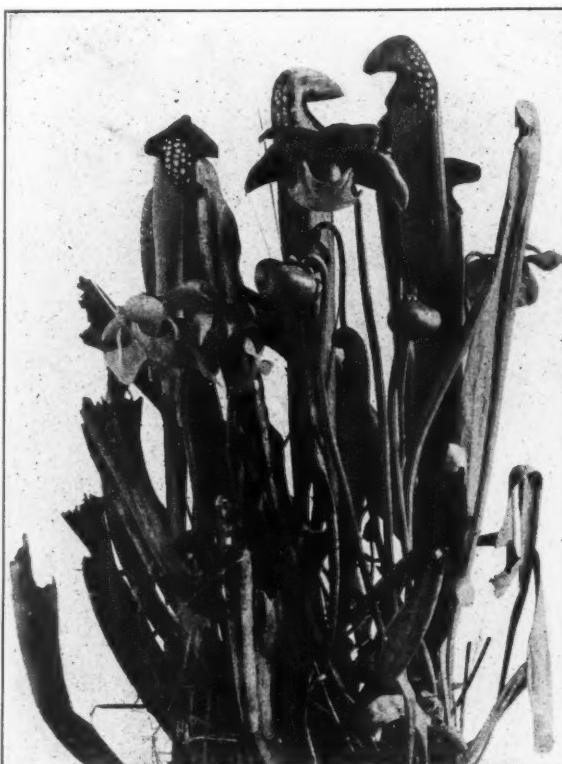
quently, in the evenings, the camp fire will attract a number of these; and should the explorer remain several days in the same locality in the forest, many moths may be enticed by "sugaring" some of the trees of the vicinity. We now have a number of popular works that inform the collectors of moths and butterflies as to how they should proceed to attract them; how to make the captures, and how to care for the specimens after they are taken. Dr. W. J. Holland's "Moth-Book" and "Butterfly-Book" give all this in great detail, as do various Government publications and the hand-books of popular lepidopterists.

The Sphinxes, or Hawkmoths, form a very large group and a most interesting one, not a few species of which can only be captured in the Gulf States. Among them occurs the Giant Sphinx, which is only a "straggler" in southern Florida and southern Texas; it is of a rich brown color, with a row of orange spots down each side of its body; it may have a spread of at least thirteen and a half centimeters. One will have a prize indeed should one capture a specimen of this species and bring it safely home in good condition; it will surely be the envy of every moth collector in the explorer's list of friends.

There are no fewer than five subfamilies of the family of Hawkmoths, which family contains hundreds of different species. Many have a coloration and bizarre markings of extreme beauty, and some of the southern forms are exceedingly rare in collections.

One is sure to meet with the big Tomato Sphinx, and the five-spotted Hawkmoth, while there are numerous related species in Louisiana and Texas.

Many of our larger moths present an elegant array of colors and markings; and unless one has enjoyed opportunities to examine and study these, there are certainly many surprises in store for him. One of the grandest of our moth groups is the Underwing genus (*Catocala*), and



A REMARKABLE PITCHER PLANT FROM FLORIDA
Figure 10. As a group, the pitcher plants of the country stand among the most curious flowers that we have. The spotted Trumpet Leaf of the South; photographed natural size by the author. This is one of the strangest species of this small group. (Reduced one-half.)

over a hundred species are to be found in the United States, not a few of which are to be taken only in the Gulf States. Some collectors confine themselves entirely to the representatives of this assemblage, and many works have been published about them.

Butterflies are, of course, only taken in the day-time; but what has just been said in regard to the moths applies equally to them, and, it may be said, too, of all other insects.

As has already been stated, Florida is a great State for flowers, and doubtless there are many new species to be collected within her boundaries. Many of those already known are either very curious or else very beautiful, and frequently a species will glory in both of these attributes. Some of the plants, as many know, are carnivorous in habit, capturing and digesting a number of insects. About a year ago, Mr. F. W. Walker sent the writer, from southern Florida, upwards of twenty living specimens of the plant known as Venus' Flytrap. A single plant will measure but a couple of inches across, or about five centimeters, while it does not grow to be more than half that height. Its leaves are reddish and green-

ish, and more or less sticky, with minute, flexible hairs growing all over their upper surfaces. Each leaf may close up by the two halves folding upon each other, the hinge-line being the mid-rib. Now when some hapless little fly alights upon one of these leaves, it slowly closes up upon him, until the insect is entirely in its grasp; the leaf does not open up again until the insect is not only lifeless, but actually digested, just as though it had been in the stomach of some animal possessing a regular digestive apparatus, such as that of any mammal we may happen to think of when the process of ordinary digestion is being considered.

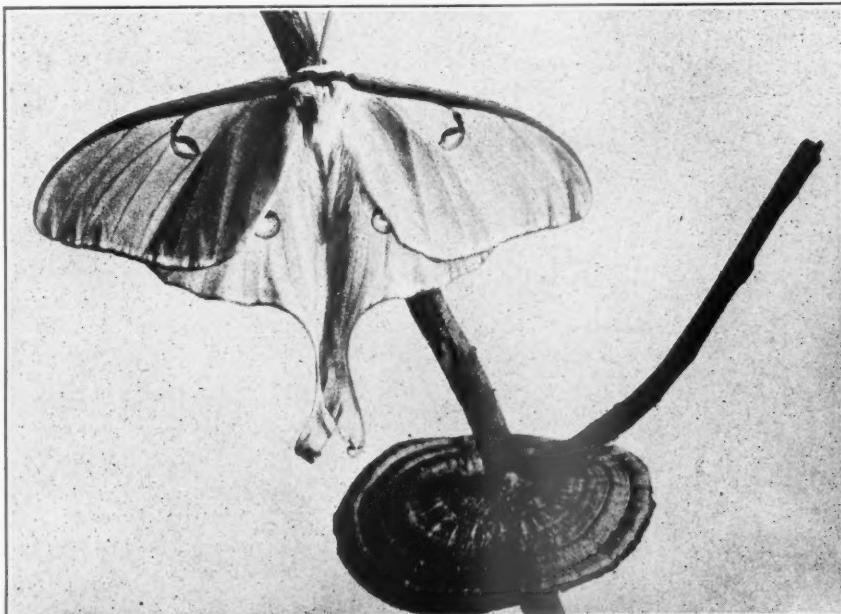
But rich as the flora of the Floridian region is, it has no mean rival in this respect in some parts of Texas. In certain areas the country is rich in grasses, and a most interesting collection of these may be gathered by the explorer. Indeed, one area is extremely rich in

these plants, extending as it does from the northwestern part of the State south to the thirty-seventh degree of latitude, and eastward to the one hundred and first meridian of longitude. Along the Rio Grande many species are found that are the same as those that occur in northern Mexico. Coastwise, many elegant trees may be seen and studied, the principal representation being peculiar oaks and hickories, as well as the long and short-leaved pines.

Mesquite bush and scattered live oaks are the principal ones, and in some places the only trees to be seen in the black prairie region. Along the rivers in the valleys we meet with fine pecans, cottonwoods, and more kinds of oaks, while in many places numerous shrubs flourish in great profusion. Various tree and shrub

growths are found in other regions, while cacti and yuccas of several species flourish throughout the valley of the Rio Grande. Incidentally, it may be said that there is a large lumber trade in Texas, more particularly in pine timber, the other woods being used only for fuel and fences.

Speaking of the yuccas (Figure 14), in the southern part of the State they lend



A FINE SPECIMEN OF THE "LUNA" MOTH

Figure 11. Of all the American moths, no single species is more universally admired or more eagerly collected by the amateur lepidopterist than the "Luna." This is a perfect specimen of a male Luna moth, collected and photographed from life, natural size, by the author. It is of a pale green color, with the edges of the forewings marked with rich brown and tan.

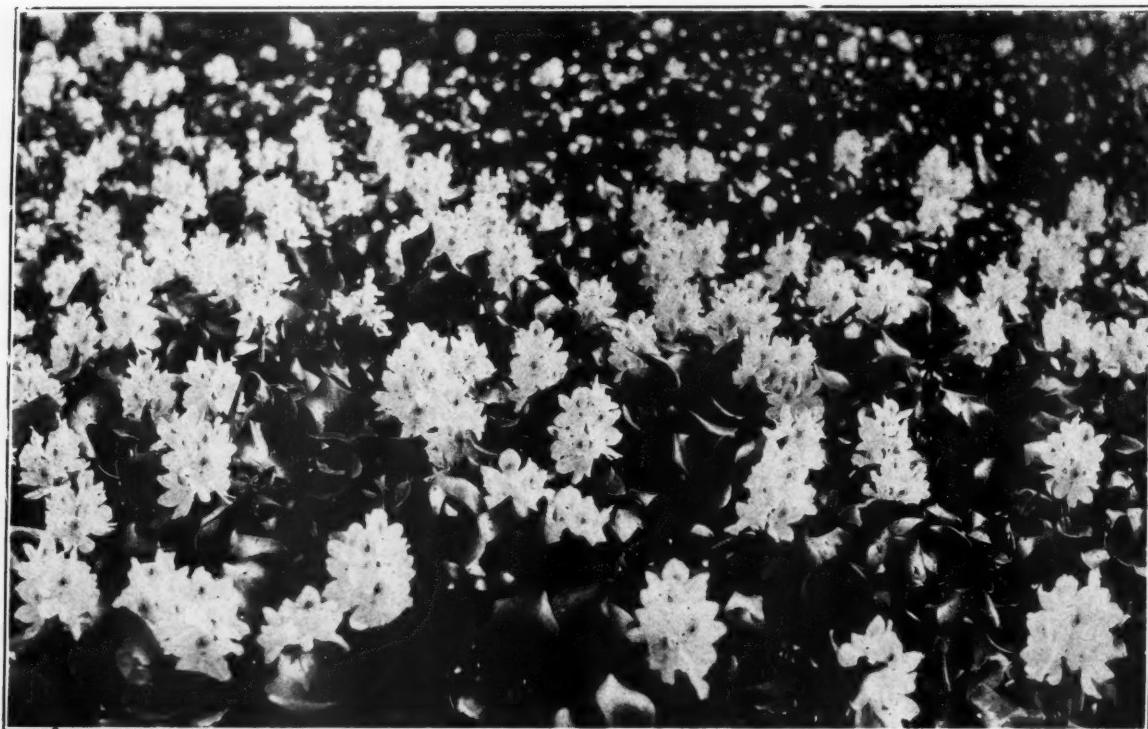
to the landscape in many places a truly tropical aspect, besides being distinctly picturesque in appearance. Their big flower panicles are wonderfully showy, and attract many handsome butterflies and some other insects, while small mammals and various snakes, some of them venomous, may hide about their bases where the spiny leaves are dead and directed downwards.

Anyone who has traveled through western Texas becomes familiar with the mesquite tree, or, as it sometimes grows, a shrub. In some places where it may grow to be thirty or forty feet high, it is commonly known as the chaparral. Here it is scrubby and masses into dense clumps, it being the home of that famous bird the "road-runner" or chaparral cock, and other interesting species. This is a form of big, ground cuckoo, that only takes to flight when hard pressed; while on open ground it can run so fast that an ordinary horse cannot keep up

with it. Speaking of mesquite, a writer at hand says of it that "under the action of prairie fires it is reduced to a low shrub, developing then an enormous mass of roots, locally known as *underground forest*, of great value as fuel. The wood is heavy and very hard, almost indestructible in contact with the ground; it is used for the beams and underpinnings of adobe houses, for posts and fencing, for fuel, and for furniture. It is of a brown or red color, handsome when polished, but difficult to work. The bean-like pods, before maturity, become pulpy and exceedingly rich in grape-sugar. They are eaten by the Indians as well as by whites, and furnish a valuable fodder for horses. The shrub also exudes a gum re-

the toads found in the neighborhood of Brownsville, for example, have not as yet received any common names. Of these, *Hypopachus cuneus* may be cited, of which Miss Mary C. Dickerson reports in her "Frog-Book:" "The habits and life history are not on record."

Photographs of some of the lovely flowers of Texas have been sent me by Mrs. Kate Peel Anderson, of Brownsville, Texas, and among them a most attractive picture of an *Aristolochia*, which the Texans and others know as the "Duck Vine" for the reason that the unopened flower, on side view, resembles a swimming duck. The richly tinted blossoms, when in full bloom, are delicately dotted all over with irregularly shaped choco-



THE BEAUTIFUL WATER HYACINTHS OF TEXAS

Figure 12. In many parts of Texas, the Water Hyacinths grow in the greatest profusion about the borders of lakes and other small inland bodies of water. This beautiful picture of the Water Hyacinths, together with the plants here shown in Figures 14 and 16, were presented to the writer by Mrs. Kate Peel Anderson, of Brownsville, Texas, with permission to use them in the present connection.

sembling a gum arabic, which in Texas and Mexico is collected in considerable quantities for export."

Along the rivers and streams in some parts of the State, and around the margins of ponds and lakes, we meet with great beds of the Water Hyacinths. Their delicate white flowers and dark green leaves present a picture of floral luxuriousness not easily forgotten (Fig. 12). Where they grow, one should be on the look-out for various species of reptiles or batrachians, and their habits and appearances in nature carefully observed. We know very little about some of the forms, and science will welcome any new facts in regard to them. Some of the frogs and toads, for example, are not only very rare in collections, but we are practically lacking in any field notes upon their exact distribution and habits. Some of

late colored spots, which strongly remind one of some of the flowers of an orchid. Mrs. Anderson seems to believe that the Duck Vine is an "insect eater," and possibly this is so. When the seed-pods mature, each has the appearance of a charming little suspended basket, at the bottom of each of which we find the flat seeds of the plant.

Thus we see that while there yet remains a great deal to be examined and desired in the botany and zoology of Florida, Alabama, Mississippi, and Louisiana, the flora and fauna of Texas is even less known—that is, compared with that of some of our New England and Middle States. Now that the country is gradually settling down again, following upon all that was forced on it as a consequence of the great war, it would seem that the

time has arrived when such activities as researches in the various natural sciences and geology should be entered upon by the present generation far more extensively than they are at present. At no time in the history of this Republic has there been a period when so little work of that kind has been initiated, prosecuted, and published. The writer, having been actively and continuously engaged in all departments of biology and various allied activities for considerably more than half a century, feels that he is in a position to make comparisons of the annual achievements in the departments referred to as the years have passed. Owing to the enormously increased use of the airplane and the automobile, the wilder parts of the country are being overrun by thousands of people who never contemplated visiting such regions before. Altogether too many of these are destructive to animal and plant life, and absolutely heedless as to using the material for any purpose whatever. All this can but work to one end—and that is to extermination. In some instances this will be rapid, and gradual in others. The larger animals and the most conspicuous plants will disappear first, but the fate of all will be the same. Climate and inaccessibility will protect some regions for a greater length of time than others; but even these will soon cease to constitute barriers, and the inevitable outcome will be the same.

What has already happened in Florida is, perhaps, not so evident in the case of the other Gulf States; but to a degree it is also true of them. Young naturalist-explorers should ever bear all this in mind; and in making their field notes upon plants and animals of the region here being considered, it is always well to make a record of any observation that is likely to be of any value to the naturalists of the years to come. This duty is only too often neglected; it is by no means an uncommon thing to hear of a person enjoying unusual facilities and opportunities as he passed through some comparatively unknown region, arriving at the end of his journey with a comparatively blank field note-book, whereas it ought to

have been filled from cover to cover with such observations as he was enabled to make from day to day on the expedition.

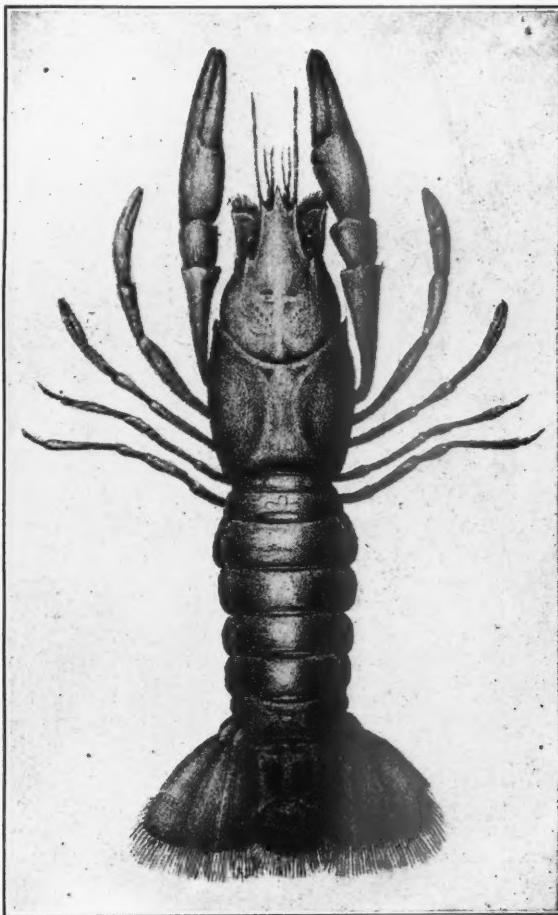
So important is this subject that entire books have been devoted to it, and one of the best of these is a volume of over 500 pages, published in London in 1861, being a revision by Dr. Norton Shaw of the late Colonel J. R. Jackson's volume, entitled "What to Observe or The Traveller's Remembrancer." Colonel Jackson was a Fellow of the Royal Society. It is pointed out in the preface that "the work is intended for general use, and will be found serviceable alike to those who travel luxuriously over civilized Europe or America, and to the adventurous and undaunted spirits who, in all climates, are content to have obstacles and endure hardships in search of Knowledge."

This is the very kind of book that should be studied by the one contemplating an expedition through the wild and least known sections of the Gulf States. So thorough and extensive is the treatment of the subject in it, that it is quite out of the question to review all that it touches upon. It may be noted, however, that Section III is devoted to the "Animal productions or Zoology of a Country," and the author, in about twenty pages, goes most thoroughly into the question as to what the explorer should make record of along the lines indicated.

Every working naturalist in this country, and no end of them abroad, is familiar with certain nature textbooks—wonderful sets of

books, carrying hundreds of plain and colored plates and text-cuts. These volumes take into consideration all the main groups of animals, trees and plants, shells, fungi, and other subjects. But a few groups are still left for treatment, the most conspicuous omissions being the salamanders, the coleoptera among insects, and some others.

Now, when one comes to study any of these books—about plants, fish, reptiles, batrachians, birds, and mammals, it makes little difference which volume you choose—it is soon evident that, with respect to the plants and



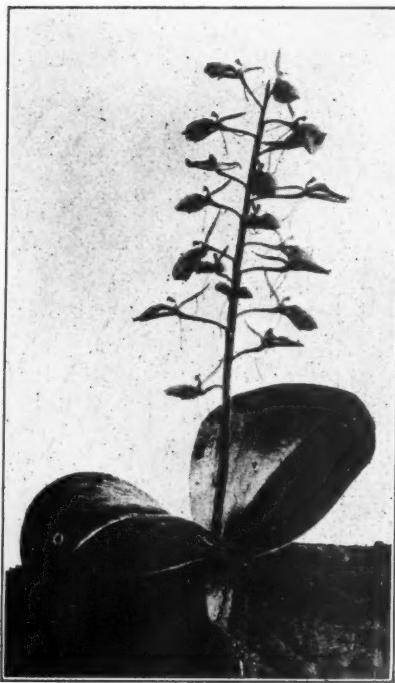
A RESIDENT OF THE GULF STATES

Figure 13. Shufeldt's Crayfish (*Cambaris shufeldti*), discovered in Alabama by the writer, figured and described by Professor Walter Faxon, of Harvard University. Explorers in the Gulf States are quite likely to meet with either animals or plants heretofore unknown to science, and such discoveries are often important.

animals of the northern and middle States, the information imparted is more or less full and satisfactory; but as soon as we get into the flora and fauna of the Gulf States, and take up the indigenous species of that region, it becomes at once plain that there are many gaps in our material in collections, and a far more evident lack of knowledge of the biology—using that term in its broadest sense—of nearly all the forms of the extreme southern parts of the country. Let us have an example or so to illustrate this uncertainty or sometimes complete lack of knowledge of our Gulf States' species.

Stone and Cram, in "American Animals," say that the Florida wood rat is said to build its nest in dense, swampy thickets; that is to say, we have *no knowledge or photographs* of the nest of this rodent, notwithstanding the fact that scores of non-observing "tourists" have for years passed through the "swampy thickets" of this particular Gulf State. To the same extent, this is true

of not a few of the fishes and birds of all that part of the country. Of such an abundant species as the "Worm Lizard" of



A FAVORITE ORCHID WITH MANY COLLECTORS

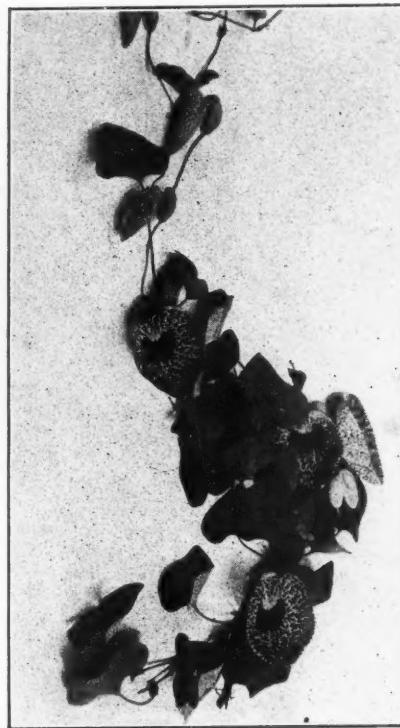
Figure 16. We call it "Twayblade" for the reason that it has but two leaves; while botanists have named it *Liparia liliifolia*, contending that its leaves resemble those of some lilies—as the "lily of the valley." Orchids are found in many parts of Florida.

Florida, Doctor Ditmars has not a word to say in regard to its *breeding habits*; and, indeed, we know practically nothing about it. Miss Mary C. Dickerson, in her splendid "Frog Book," is compelled to admit that "nothing is on record regarding the life history or habits" of the common Tree Toad of the Pine Woods of Florida and Texas—an admission that



A GLORIOUS GROUP OF YUCCAS IN THEIR NATIVE WILDS

Figure 14. This species of *Yucca* flourishes in certain parts of Texas and northern Mexico. Three of these are topped off with a grand panicle of white flowers. It is frequently found growing to a height of 25 feet, and in groups. Its edible berries are relished by the Mexicans.



A TEXAS BIRTHWORT OR DUCK VINE

Figure 15. A loosely climbing vine, locally known as the "Duck Vine," as its unopened flower, seen on side view, resemble a swimming duck. Our Birthwort family (*Aristolochia*), is represented by a number of different species, growing in various localities throughout the eastern States, the Pipe Vine, or Dutchman's Pipe, and the Virginia Snake Root being two of them.

applies to other batrachians described in that work. Doctor Howard, in the "Insect Book" of this series, says of the common Ant-lions that "the so-called ant-lions are interesting creatures which have long attracted the attention of naturalists and of nature students. The average American country boy knows the ant-lion pits in the sand about as well as he knows the curious caddis worms in the brooks;" and yet, while various species of these are abundant in the region here being considered, Doctor Howard is obliged to admit, at the close of his interesting chapter about them, that "there is need of careful study of any one of our common ant-lions. The eggs should be described; the number of molts of the larva should be known, and the duration of the different stages under differing circumstances should be determined."

Think of it! The ant-lion is known to every American schoolboy—and that for many generations; and yet, up to 1901, our most widely known entomologist

is compelled to admit in print that we have no description of its eggs! This likewise applies to the habits and natural history generally of many of our Gulf States' moths and butterflies, as admitted by Doctor Holland in his two superb volumes on these important insects.

There is a fine "Mushroom Book,"—Nina L. Marshall being its author, and in the leading chapter we read that "although for centuries it has been known that some fungi contain the most virulent poisons, still, through ignorance of those points which distinguish the poisonous from the edible, frequent cases of poisoning occur in all classes of society." Speaking of many of the molluscs in her beautiful "Shell-Book," Miss Julia E. Rogers tells us that "little is yet known about the life history of many of these. The limits of distribution are vague and inaccurate for many. When does this snail lay its eggs?

How long do the young require to reach maturity? When does that species seal up its doorway and go into the ground to spend the winter? . . . The careful

observer, if he keeps a note-book, may discover and pass on to conchologists valuable facts in the life history of little-known species. The study of our land molluscs is

very incomplete. It is a worthy and enjoyable opportunity that is open to the earnest young naturalists today."

What is admitted here holds true for a long list of the molluscs of any one of our Gulf States; and not only young naturalists but adult explorers should bear these facts well in mind.

Passing to botany, the same gifted authoress tells us, in her "Tree Book," that "trees are better known than less conspicuous plants. Fungi and bacteria are just coming into notice. Yet even among trees new species are constantly being described." This candid statement should be of especial interest to intelligent foresters, not only those at work in the Gulf States, but anywhere



A NATIVE PARROT OF THE UNITED STATES

Figure 17. At one time this little Carolina Parrot ranged over the larger part of the eastern United States in immense number, but it is now nearly exterminated. Only a few of these birds are left in Southern Florida; it is a long-tailed green species, with red and yellow head. From life, by the author. As here shown, it is feeding on the seeds of the cocklebur, of which it is extremely fond.

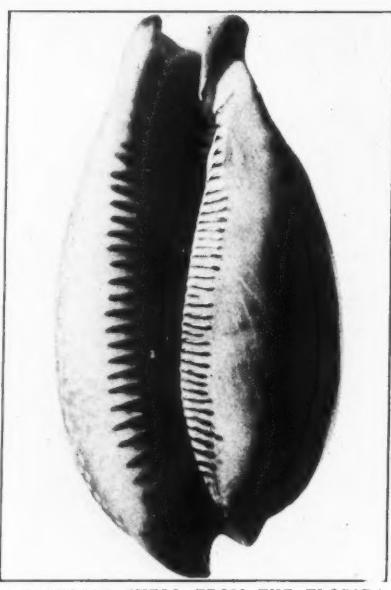
in the country. In as much as there are still undescribed species of trees in our forests, it is sufficient evidence of our ignorance in reference to them. Not a few plants

AMERICAN FORESTRY

in the flora of the United States are still entirely unknown to botanists; and by all means the best way to study them, after their discovery, is pointed out by Neltje Blanchan in her "Nature's Garden," of the nature volumes here mentioned. From Jacksonville, Florida, to Brownsville, Texas, there are over 1,700 miles of coast-line, not including the shores of bays and minor inlets. Thousands of land forms occur all along the line, of which our knowledge is extremely meagre; while as to the marine forms that inhabit the waters of that long shore-line—of the Atlantic Ocean and the Gulf of Mexico—we have, upon the whole, but very slender descriptions indeed. Of many of the minute species we possess no knowledge whatever, and science is still ignorant of the existence of others.

Do we hear an American forester ask, "Of what possible use or value can such knowledge as is here referred to be to me?" To which interrogatory this prompt reply may be given: "Of all the use in the world. And the more you command of it, and the better you comprehend how to use it, the more efficient you will be as a forester in the forests of this country. United States needs every intelligent forester it can muster; or the time will come, however distant it may appear to many at present, when their services may be dispensed with altogether!"

In many sections our small birds are now being exterminated with marked rapidity; and yet Philip Henry

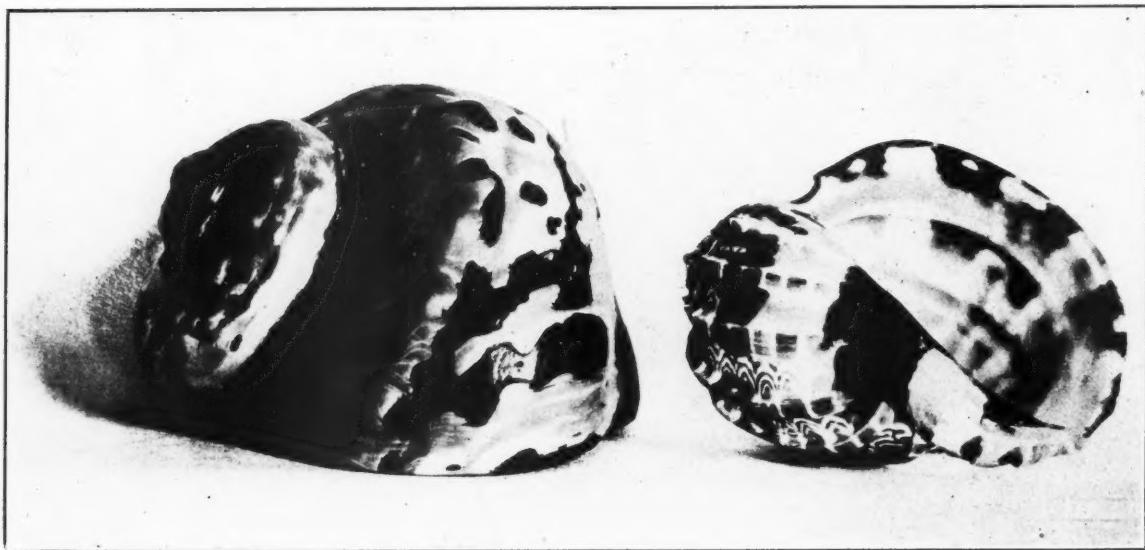


A FAMILIAR SHELL FROM THE FLORIDA REEFS

Figure 19. Hundreds of different species of shells may be collected on the Florida reefs, and the one here shown is among the most familiar. Its dark back, thickly sprinkled with round, white spots, is responsible for both its English and its scientific name—the Measled Cowry (*Cypraea exanthema*). (Seen from below.)

Gorse, in that delightful volume of his "The Romance of Natural History," says "doubtless many of our most richly wooded landscapes owe much of their timber to the agency of quadrupeds and birds. Linnets, goldfinches, thrushes, goldcrests, etc., feed on the seeds of elms, firs, and ashes, and carry them away to hedgerows, where, fostered and protected by bush and bramble, they spring up and become luxuriant trees." Nuthatches and squirrels plant acorns that often come to be the noble oaks of later generations. On the other hand, this author points out that "a number of tall, prostrate trees were lying about, upon which large columns of ants of all kinds moved busily to and fro. In penetrating into the depths of the primeval forests, one sees evidence at every step that these minute creatures are the destroyers of the colossal trees, whose strength braves all the attacks of storm and wind."

In several places in his work entitled "North American Forests and Forestry," Ernest Bruncken undertakes to demonstrate the connection between the forest and "the great forms of earth-life," and points out the value to the forester of a knowledge, as far as he is able to command it, of all things from insects to fire, from meteorological phenomena to earthquakes, that may directly or indirectly affect forests of all descriptions. This author, however, is not always happy in his synonymic comparisons, and thus exposes his lack of knowledge of certain



TWO BEAUTIFUL SHELLS

Figure 18. Our Florida shells compare very favorably with those from foreign countries in the matters of form and coloration. At the left a Top Shell (*Littorina pica*), which has been found in Charlotte Harbor, West Florida, and most abundantly to the southward. It is of value both as food and commercially. The smaller specimen is a Harp Shell from the Philippines.

things we may find in nature. In denouncing the setting on fire of forests by "two dry branches being rubbed each against the other," he says: "No experienced woodsman or forester will believe such a tale. It belongs in the same category as the two-headed snake," etc. As nearly every extensive collection of reptiles in this country contains one or two specimens of "two-headed snakes," it would have been more to the point had a five-headed snake been selected as the monstrosity for comparison. Notwithstanding such slips, this work is a most excellent one, and has exerted a far-reaching and beneficial influence in inviting popular and governmental attention to the importance of forests and scientific forestry in this country.

As far as we can peer back into human history there has always been an intimate relation between man on the one hand and the forest on the other; and it always will be so just so long as extensive forests are to be found on this planet. But then, for man to successfully conserve forest growths and deal with forest protection, he must command, in the way of knowledge, all that he possibly can of what there is in nature that makes for such ends or militates against them.

TIMBER RAISING IN EASTERN UNITED STATES PAYS BECAUSE—

1. There is plenty of cheap land unfit for agriculture.
2. The abundant rainfall permits rapid tree growth.
3. Transportation facilities by rail and water are good.
4. Numerous large cities furnish an adequate market.
5. The region is far removed from the virgin supplies of the Pacific Northwest.

LONGLEAF PINE HAS HEAVY SEED CROP

ONCE in a great while occurs a heavy year for longleaf pine seed and forest officers returning from the Southern States say that this year, 1920, is an unusual seed year for this species. This report is confirmed by local lumbermen pretty widely throughout the range of the tree, which is, roughly, from North Carolina throughout the Atlantic and Gulf Coastal plain to eastern Texas. The occurrence is particularly noteworthy because the species matures full seed crops no oftener than about 6 to 8 years. Partial crops, or small amounts of seed occur irregularly during the intervals.

The seed commonly ripens by early September and falls to the ground soon afterward. If the fall weather conditions are not unusually dry, the seed commonly germinates in one to four weeks after it reaches the ground. Longleaf pine produces a large seed full of rich food so that it is eagerly sought and attacked by insects, birds and native or "razor-back" hogs. If fall and early winter conditions are favorable, the seed sprouts early in the spring with the coming of warm weather. As a result of the present abundant seed crop, many thousands of acres of longleaf pine forest land will undoubtedly be carpeted with seedlings by next spring.

The reason foresters are calling attention to the heavy seed crop and promising an abundant crop of seedlings by the spring of 1921 is, that they may bring home to the owners of longleaf pine lands the peculiar need for protecting their lands from fire. They point out that it would cost from 5 to 10 dollars an acre to restock by artificial means what nature is about to do gratuitously this fall. Owners of longleaf pine lands wishing natural reproduction to take place in this way should not fail to take action towards keeping out fires, commencing with the fall of 1920 and continuing for at least the two following seasons, and longer, if possible. The tender seedling is easily killed by fire during the first year or two. Afterwards, the small tree, although injured by fire, many times succeeds in pulling through. The native "razor-back," if present in any numbers during the early spring months, destroys practically all young seedlings by eating the thick spongy succulent bark around the taproot and must be kept under close limit as to numbers, or excluded altogether. On lands burned over by fires in the cold season and not oftener than every two or three years, the majority of longleaf seedlings may be expected to survive. Annual burnings by hot fires finally gets practically all of the saplings in the course of a few years. The common belief that fires do practically no injury to longleaf pine, or are even necessary for natural production, is doubtless based upon the remarkable resistance that the tree possess after early life of resisting serious injury from fires. Tender young seedlings are readily killed, and consequently every necessity for protecting them in a critical year like the present is particularly urgent.

A FOREST TRAGEDY

By John D. Guthrie.

He left his camp fire burning to see if the Lookout would pick it up.

He did.

He thought this would be a good test to see if the District Ranger was on the job.

He was.

He wondered if a fire would burn very fast in the dry forest.

It did.

He thought he could get away before the Ranger could catch up with him.

He couldn't.

He thought he could bluff the Judge at his trial.

He didn't.

He wondered if the Judge would have the nerve to sentence him to jail.

He did.

We wonder if he will put out his camp fire the next time he is in the forest.

HE WILL!

ANOTHER WORD ON "LIGHT BURNING"

BY FILIBERT ROTH, DEAN OF FORESTRY, UNIVERSITY OF MICHIGAN

STEWART EDWARD WHITE in the *Sunset Magazine* of March explains "light burning," and recommends it as a regular practice.

An artist in popular writing, White did this so well that California is quite stirred up, and lined up in two camps, and the matter is truly serious.

White is not only clever, but from his point of view he is also right, and the truth of what he claims seems so evident that there is no use in disputing. He makes two points:

Fires destroy "bugs."

Regular burning prevents accumulation of debris, and consequently prevents large fires.

The first claim needs no consideration; it is new, unproven and contradicts the experience of 100 years. The "bugs" (here the bark beetles), are encouraged and not discouraged by injuring pine trees. But this is very secondary.

The second and important point is well taken. Light burning with raking about the trees is an old practice in the South, and has successfully protected thousands of turpentine orchards. Simply burning the woods at frequent intervals has kept millions of acres of Southern pinery "clean" of brush, young trees and debris and thus has added to their safety from fire. "Use fire to fight fire," was advocated by the Michigan Forestry Commission years ago.

White's chief argument may be stated thus: Nature has maintained forests for untold centuries, she has had fires and bugs and storms and ice and all the other troubles and yet she has given us the most beautiful and useful stands of timber, a joy to see, and valuable beyond compare. This argument not merely seems true, but is true. If man would leave nature alone, as he did in the past if he would not log and lumber, if he would not clear land, travel, etc., nature would certainly go on indefinitely and maintain beautiful forests. But this if is not fulfilled and cannot be in the future; we do and we must log, build roads and railways, we clear the lands, we travel and we people the forests.

This White knows and it is to protect the forest against all these new enemies, as well as the old, that he recommends light burning as nature's great remedy to perpetuate the forest, whether this method will protect, at what cost in money and in injury to young and old trees, whether it can be made as effective as the protection now begun (for it is not one-fifth organized as yet), all this can be tested by experiment.

To most foresters the experience of the past is quite sufficient to fill them with apprehension, but being open-minded, there is no opposition on their part to meet experiment, but rather against a campaign which rests on inference and is not supported by experiment.

Since White bases his argument on the success of nature it is interesting here to consider how far she has

really been successful and how far nature failed to work even without all the man-made difficulties of lumbering, clearing, etc., and also how far she relied on the light burning where she did succeed in building up stands of well-cleaned, now useful timber. If we leave out the hardwood district where fires rarely occurred and consider only the large pinery regions of the United States, this seems true:

Here in Michigan, white pine and Norway pine made stands of 75,000 feet board measure per acre and over; but 50,000 feet per acre for an entire forty was rare; 25,000 feet (a million forty), was "fine" timber; the old stock figure for pine was 5,000 feet per acre for large areas. Even doubling this old stock figure of 5,000 feet, and allowing 10,000 feet per acre as average, nature seems to have been about 20 per cent efficient. From large caliper surveys in the southern longleaf and shortleaf timber it is apparent that, for the long rotation with which nature worked she was not over 40 per cent efficient, even in real forest, to say nothing of the large areas in which she had nothing to caliper or to cut. In the Rocky Mountain Forests, or pinery, nature did maintain forest, it is true, but her success was even less than in the Lake Region and South. She burned altogether too freely; large areas turned to prairie; parks, south slopes and foothills, often the very best of sites were without timber, and taking the entire area of lands fit to raise timber and from our utility standpoint, best suited to timber, nature was probably not over 20 per cent efficient. The fine stands of lodgepole, yellow and white pine which she did produce, certainly did not develop under repeated fires, but were clean timber because they started in dense stands which would certainly have been destroyed if ever set afire. That nature burned irregularly, that large areas have not seen fire in a century is amply proven by any survey in lodgepole, which shows that this pine usually starts in dense thickets, at times so dense as to stagnate for many years. The California mountains are not very different from the Rockies. With extraordinary land and climate for the production of timber, with species which commonly grow to the age of 300 years and more, and with numerous stands of over 100,000 feet per acre, what is the *average stand* over the California forest area? Why has nature failed to cover fine forest sites with timber? What is the area of all that foot hill country covered with brush and forage stuff? Why the large areas where brush has followed the timber and will prevent timber growth for years?

Nature has done well; in her household chaparral may be as good as sugar pine, but from the standpoint of today and of our industrial people, her success is about the same as nature's effort at fruit growing with her huckleberry crop every 10 years, her wild cranberry and straw-

(Continued on page 572)

THE DEPARTMENT OF FOREST RECREATION

BY ARTHUR H. CARHART

ANNOUNCING THE DEPARTMENT OF FOREST RECREATION

NEW ideas and new methods develop to meet new or changing conditions. The first public appearance of a new publication or the premier greeting of a new department of an established magazine heralds some new situation or a condition which did not exist before or one which has grown to such size as to merit greater recognition. In this issue of "American Forestry" the department devoted to the recreational use of forest areas salutes all readers and thus signalizes a greater use of our forests as play areas and a new service for the lovers of the out-of-doors.

RECREATION existed on forest lands before the Roman Empire flourished. It was a paramount use of England's forests before America was discovered. It is no new thing. But the universal use of forests for recreation by the people of the United States has so recently developed to national importance it may be truly said that the activity is a newcomer to the group of uses existing on American forest lands.

INFORMATION and general knowledge of the opportunity for play and outdoor life in the forest regions have not kept pace with the new popular recreational movement and the rush to the forest playgrounds of the republic where magnificent vacation lands are found.

THESE statements are not excuses for this department coming into being, but set forth the reasons for its establishment to meet a need. It will aim to accomplish certain definite things which when summarized mean the bringing of greater knowledge of the play use in our great National, State and County forest and park systems, to the readers of this magazine. And thus it will add to the great sum of National wealth of health in mind, soul and body, especially among those who are led to visit and use these areas. It will establish a greater appreciation of the exceptional aesthetic values found in these great forest properties, and it will help build up the patriotic spirit of the country through directing citizens of the land to the great silent woods, the snow crowned peaks or the deep canyons where they may come to "Know America," and knowing her in all her marvelous examples of scenic beauty will come to love the "rocks and rills,—woods and templed hills" of their home land with a fervor which will brook no policy or movement which threatens the peace of the land or its institutions.

VACATION OPPORTUNITIES IN YOUR NATIONAL FORESTS

HAVE you waited until now to plan where you will go on your vacation? Are you still debating whether to go to the country or to some beach? If you are in this quandary let me offer a suggestion; spend your play time of this year in a National Forest.

You will naturally wonder on what grounds this suggestion is made. The answer is found in the great variety of vacation activities available on forest lands for these extend from Gulf to Border and from Atlantic to Pacific and the different types of recreation found in them are almost as varied and extensive as the forests themselves.

Suppose you are looking for a place to simply rest. Any forest will offer this opportunity in some form or other. It depends much on where your home is located which forest you choose to visit. If your home is east of the Mississippi basin you can easily reach the White Mountain National Forest where you can get accommodations in some resort or farm house near the forest. Here are clean air, peaceful hills, pure water and the rest you are seeking. Or, if you prefer to travel southward, the Shenandoah and Natural Bridge Forests are to be found in old Virginia, and the Pisgah National Forest is in

North Carolina. If you wish to visit the White Mountains or the green clad hills of Virginia or North Carolina, write the District Forester, at Washington, D. C., asking for information on these forests.

If your home is in the mid-west, there are a score or more places where you may go and find the rest you desire. Information, telling of vacation areas in the mountains of Colorado, will be sent if you send a request to the District Forester at Denver. Or from the same source may be had data concerning the forests of Minnesota, South Dakota and Wyoming. There are places where one may rest undisturbed by any hurry and rush of modern life in each of these states and within the boundaries of National Forests.

Perhaps you wish a place where you may row, fish and swim. Do not hesitate. Take your pen today and inscribe a letter to the Forest Supervisor of the Minnesota National Forest at Cass Lake, Minnesota. The town of Cass Lake looks out over the placid surface of the beautiful body of water of that name and is within easy canoe distance of scores of smaller lakes and streams where may be found the finest sort of a place to camp or build a summer home. In the midst of Cass Lake rises beautiful Star Island. There is a peculiar



THE VACATIONIST AT TRAPPERS LAKE IN THE WHITE RIVER NATIONAL FOREST IN COLORADO CAN SPEND MANY DELIGHTFUL HOURS FISHING FOR TROUT

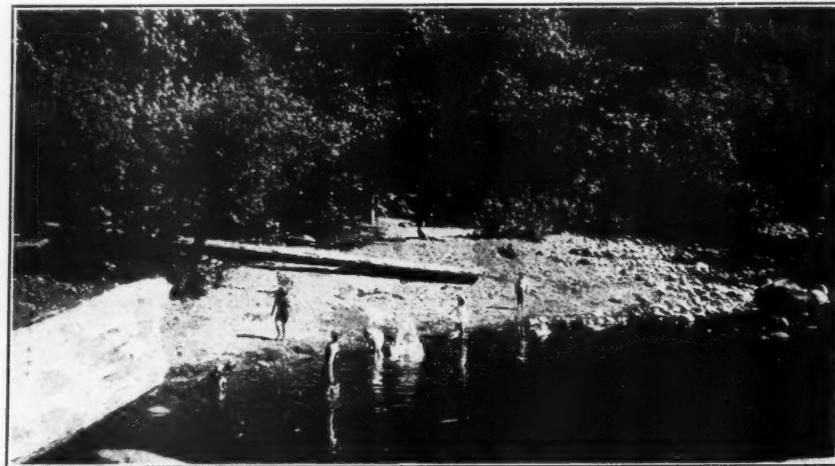
thing about this island in that it has a lake within it that comes within thirty or forty feet of the main lake at two points and still has no surface connection with the outer body of water. The little lake within the island is about half a mile long and nearly that wide and is very deep.

Fishing in Cass Lake is excellent. In the deep cool holes and under the shady side of the great reefs lie gamay pike. With the greatest sort of vim pickerel strike at your bait and it is a poor fishing day when one cannot bring home enough of the fish inhabitants

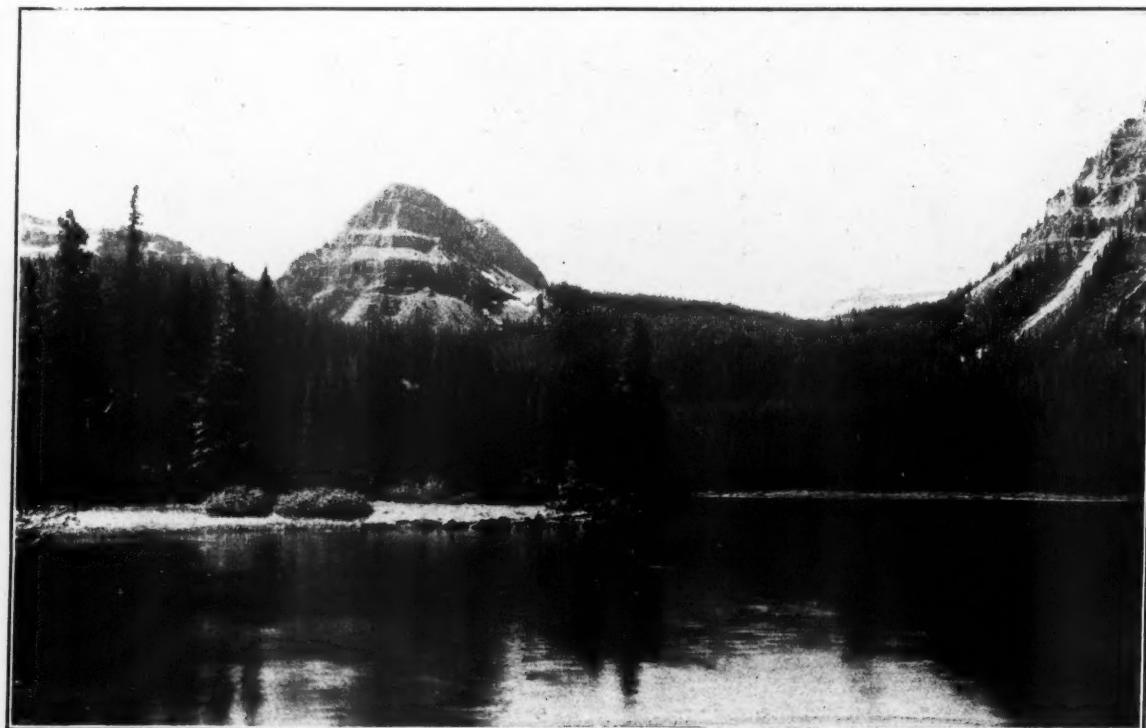
of this lake to satisfy the hungriest family. Just off of Cass Lake and where one may reach it with a canoe by portage is Lost Lake and if you can find it you will there get some of the greatest bass fishing in this forest. If you would not suspect it was a fish story I would tell you of the fine string of eight bass I saw one day

last summer, each of which weighed more than two pounds, representing the success of about one hour's fishing in Lost Lake. And there are other lakes and lakes and yet more lakes in this forest. Bathing beaches abound on Cass Lake. Two superb beaches are on Star Island. Norway Beach, on the south side of the lake, is a very good bathing place and all around Pike Bay, a great arm of Cass Lake, are beaches equal to any.

Motor boats, canoes and row boats carry one to the inlet where the Mississippi flows into the lake, to the old Indian mission near this inlet, to the Indian camps that are along the banks of the lake during the berry season and to the outlet where the Mississippi empties from Cass Lake. There is no limit to the water trips that may be taken in the Minnesota National Forest and each leads by a beach that lures one to dip in the clear



DO YOU LIKE BATHING? FINE LITTLE BEACHES SIMILAR TO THIS ABOUND IN THE NATIONAL FORESTS



THE QUIET BEAUTY OF ONE OF THE NUMEROUS LAKES IN THE NATIONAL FORESTS, THE BENEFITS OF WHICH ARE AVAILABLE FOR THE USE OF THE PEOPLE

waters of the lake or loiter over fishing grounds that hold fighting game fish of large size.

What a grandeur of mountain scenery you will find if you visit the forests of the Western States! Everywhere there are peaks and pinnacles, cliffs and chasms. I cannot begin to enumerate the great mountain climbs that are to be found here. The highest peaks in the United States are within the borders of these Western forests and each presents a picture and an appeal that is nowhere found quite like it is present in these great playgrounds of the West.

Did you ever climb Mount Hood? You have a treat coming if you plan your vacation so you can visit this great king-like peak of Oregon. There are camping spots galore in this region and good trails lead through the tall boles of the forest trees which look for all the world like the columns of some majestic cathedral of Nature.

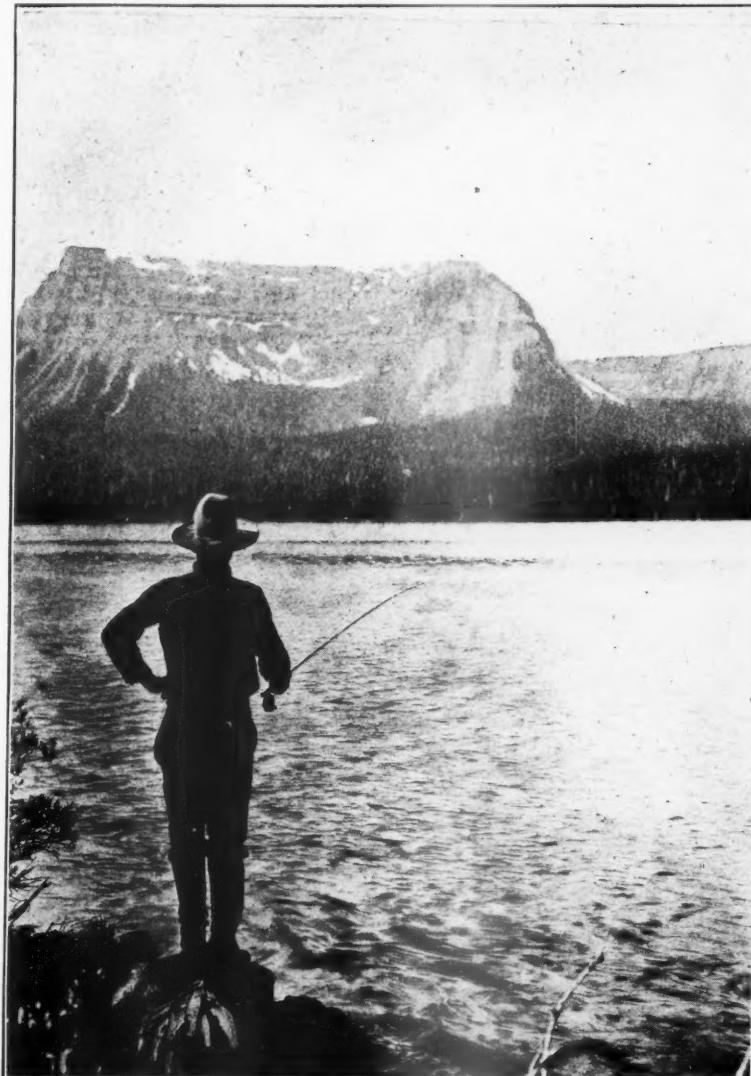
In the same region are Mount Jefferson and the Three Sisters, all of which are mountains of exceptional beauty. Good trout streams abound, waterfalls glisten in the settings of greenery and the lure of Oregon and her forests soon gets hold of your fancy. If you want to become one of the enthusiasts who yearly spend their vacations in the National Forests of the Pacific Northwest write the District Forester at Portland and tell him you plan on coming to his forest country this season and ask him where to go, how to get there, what to see and all about it, and he will give you that information. You will not be crowded for space there nor will you have a dearth of places from which to pick your vacation camp. Oregon

has seventeen National Forests and Washington has been blessed with ten.

The home of the heron, the land of the big bull moose and the greatest canoe country in the world are found in the Superior National Forest of Minnesota. There is no place that will appeal more to the lover of canoeing than the unequalled canoe land in that great National Forest playground. The forest contains more than a million acres of land and within this are 150,000 acres of lake surface and hundreds of miles of streams.

There are more trips wrapped up in the Superior National Forest than any other great National Playground which can be easily reached by the people of the Middle West. There are canoe trips that take one only a few hours on a lake and there are others which test the grit of a sportsman and will engage his time for weeks or even months. If you wish to spend your vacation in the land of the old voyageur where today the canoe is the only sort of transportation that will reach many parts of this untrammeled country go to the Superior.

There are the gamiest of northern lake fish, big game and stately forests. But remember in picking on this forest as a place to spend a vacation that it is a country best suited to real outdoor lovers and that there is a good lot of hard hiking to do over portages and some steady pulling on canoe paddle if you get anywhere. Write the Forest Supervisor at Ely, Minnesota, for information about this greatest playground for the middle west and the paramount canoe country of the world.



A FINE CATCH HAS ALREADY REWARDED THIS DILIGENT FISHERMAN, WHO IS FISHING OFF SHORE IN ONE OF THE LAKES OF THE WHITE RIVER NATIONAL FOREST

Shasta is but one of the myriad of mountains of exceptional beauty within California's forests. Twenty forests are in California and the great wealth of beauty for which the state is noted has the greatest share of it protected in National Forests.

Lake Tahoe, famed for its beauty throughout the world, is in the Tahoe Forest. On every hand where

mountains and canyons nearly all are within National Forests. The great range of the Bighorns in Wyoming, the Medicine Bow range in the same state and the famous Wind River country are all in forests. Trapper's Lake, Ouray in its wonderful setting of jagged mountain sides and the famous Pikes Peak are all in Colorado's forests. The Sangre de Cristos, the longest single line of peaks in one range in the world, and the mystic Spanish Peaks are in the San Isabel National Forest, the most versatile National Forest easily reached from the East. Fishing streams and lakes by the hundreds, auto roads and free camps are found in Colorado's National Forests. New Mexico, glowing in the romantic splendor cast by stories of early Spanish conquests, has most of her historical and scenic areas within the National Forests.

And so the tale would run if all were to be told. In twenty-four states, East, West, North and South are 153 National Forests of the country containing the great total of over 155,000,000 acres of unbeatable vacation grounds.

A WONDERFUL SPOT FOR A SWIM—WAHTUM LAKE, IN THE OREGON NATIONAL FOREST

you may turn in California you will meet a National Forest. Fine auto roads pass through and to these great areas, and camp sites which are free are found at numerous points. Write the District Forester at San Francisco if you want to hear of the forests of California and their great recreational advantages.

Between the eastern border of Montana and the Sierra Mountains and extending down to include portions of the states to the south are two great districts of the Forest Service. Millions of acres of forest land are in each. Probably nowhere in the United States can there be found any lands which have less evidence of man's dominion than are in the great forests of these districts. If you seek a land where you can utterly lose yourself for the whole season and where with pack train and guide you can loaf along through innumerable forests and meadows, write the District Forester at either Ogden, Utah, or Missoula, Montana, and these men will tell you of scores of places that will satisfy your longing for the great unspoiled wilderness, for in both districts there are many such regions.

Colorado's pinnacles, Wyoming's greatest fishing streams and hunting grounds and New Mexico's moun-

The best news of all comes at the last. Each person in the entire Nation owns equal share in these great forest areas. They are yours to use to the fullest and in



AFTER STRENUOUS HOURS IN THE OUT-OF-DOORS, SUPPER IS OVER AND THE DISHES WASHED—NOW TO ENJOY THE CAMP FIRE

any way consistent with the greatest good for all. There are no fees charged for entering a National Forest. There is no charge for taking your auto over any of the roads built by state, nation or county. Camping is free. The trails are open to all. Hunting, fishing and all sports may be followed with only the laws of the state governing. Firewood is free. The entire system of forests is yours and mine to use. There are one or

two simple rules to follow when you are in the forests. Be very careful with fire. It may mean hundreds of dollars spent in fire fighting and thousands of dollars loss if you are careless. Be clean in camp and practice good sanitation. It may mean great sickness or loss of life if you are not a clean camper. Are not those simple enough for a child to understand?

Should there be a quandary in the mind of anyone who knows of our great forests as to where to go to spend a vacation? It is hardly conceivable, for there is such a

variety in the offerings of the forests, such a breadth of country represented in these areas, such an extent of acreage in each forest and a more astounding total of all that it will be a very exacting person who does not find in the National Forest territory a place especially suited to his needs and desires.

Finally, do not forget that these forests are yours. You are invited to use them and one way most of us can get direct value out of any one forest is to there spend the vacation time of this and coming years.

AUTO CAMP CONVENiences

ALL America has turned gypsy. Or at least so it seems when one takes count of the cars met on the highway. They come from every state and foreign lands. A recent report issued by the United States Forest Service, telling of the visitors to National Forest Playgrounds of Colorado, states that within the body of the great mass of visitors 1,082,000 in all for the one state, every state in the Union was represented as well as twenty-two foreign countries.

But gypsies must have camps, and the question follows, where? And that question has remained unanswered many places. But at some points communities have interested themselves in making the stay of the "pneumatic nomad" a pleasant one when visiting their neighborhood.

Other cities, towns and villages are noting the friendliness displayed by autoists towards towns that have installed Municipal Camp Grounds, and have started like improvements. The result is a demand throughout the country for information on outdoor stoves, tables, etc., for picnic grounds and other camp structures which will adequately serve the purpose.

To give examples of all such structures that may come to the notice of one interested in camp development would take many pages. And such a collection would include many things that are hideous in design, as well as not serving a purpose for which they are designed.

But it is possible here to give some examples of the best things that have been done so far and in this manner point the way to better achievement in the future.

An illustration represents a small camp structure with a cooking and heating fireplace placed in front. This

shelter is a modification of the lean-to open face cabin commonly called the Adirondack Camp. In this structure the plan has been further modified so there is an arrangement for a fire directly in front of the open side of the shelter to offer a place for heating and cooking.

The picture shown here was taken on the Pueblo Municipal Camp Ground, located in Squirrel Creek Canyon on the San Isabel National Forest. This area of 117 acres has

been developed during the early summer of 1919 so it can comfortably accommodate about 100 people at one time. The place proved so popular parties from the city thirty-five miles away would motor to these improvements on Saturday afternoon in order that they might have some camp development in the way of fireplace or shelter for their friends and family on the picnic the following day.

Another bit of camp construction is shown here in the footbridge. On these grounds there are a number of fireplaces and two shelters. A trail and road runs the entire length of the area connecting up all parts. A small stream has to be crossed at a number of points. Foot bridges are necessary to avoid wet feet. This one shown in the cut is typical of all on the area. The design is simple and in keeping with the setting.

Shelter-cabin, fireplace and footbridge are here combined to make a small plot of canyon floor, on the side of the creek opposite to the road, an attractive point at which to picnic. One noteworthy thing concerning this particular shelter is especially interesting. As near as this shelter is to the thick stand of young timber shown on the slope there never has been even a threatening of forest fire here. A properly constructed and rightly



THE AMERICAN GYPSY PREFERENCES THE MODERN MOTOR CAR TO THE OLD TIME "VAN" AND MANY ARE THE CONVENiences OFFERED HIM WHEN HE TAKES THE ROAD TO SEEK NATURE IN HER OWN LAIR



A FINE CAMPING PLACE FOR ROAD LOVERS WITH MOTOR CARS, NEAR THE BOUNDARY LINE OF THE PIKE NATIONAL FOREST, COLORADO

placed fireplace used by careful visitors has prevented such a disaster.

A small cooking fireplace on this same camp ground is also shown. These fireplaces are placed near good water, fuel and pleasing view with all plans so arranged that there will be ample room at each fireplace for each party. The cost of these fireplaces is so low and the return is so great on investment that many more are planned for this same camp. The only materials that are needed for this fireplace, which must be purchased, are the half inch steel rods which form the grate and the necessary cement to bind the stones together. The fireplace shown is one of eight built by one man in one day, each of which have been in use throughout the season and will stand for a like use for several seasons to come.

Any autoist can build one of these fireplaces in a short time, and where the same family comes to a delightful spot many times during the summer such a convenience will always be appreciated and used. In this one small canyon camp two individuals have used these fireplaces as models and have built similar little camp stoves in spots they liked well.

All things considered, this open grate cooking fireplace is

the most used camp development that can be built. The cost is low and replacement of the entire structure would not be prohibitive. Wood is conserved by making this fireplace small in the fire floor and distance between the floor and bars. In wooded countries the fire hazard is greatly reduced by the use of this camp stove. After the very essential sanitary arrangements are made on a camp area this cooking fireplace is probably the most desirable, low-cost, improvement which can be built.

A modification of this fireplace is found in Yellowstone National Park. The walls are of cast concrete, and while this may be very suitable in some locations, it is not in keeping with the general surroundings found in Rural Park and Forest Camps. A feature of this fireplace is its arrangement in the form of the Geneva Cross. This allows for building a fire in the arm which will have the best draft to fan the fire. Where stone is not available the concrete fireplace is well suited for camp use but should have some coloring matter added to the mixture to relieve the



A VERY DOMESTIC SCENE BY THE SIDE OF THE ROAD—UNDER THEIR OWN VINE AND FIG TREE. A MODERN, "MOTORIZED" GYPSY CAMP

white glare of concrete until such a time as fires can smoke up the surface.

A fine type of out-door fireplace has been developed by the city of Minneapolis. The entire portion of this fireplace which is above ground is made of metal, the whole being set solidly in concrete. The cost of this fireplace is much higher than either of the others shown, but it will last longer than the rubble or concrete walled fireplace. A very good feature of this arrangement is the lifting grate allowing the use of the crane which is a part of the metal portion.

The big central camp stove built by the city of Pueblo for the Municipal Camp in one of the city parks is also shown. A shelter and fireplace are here combined. During the day the sun's rays, peculiarly searching in the midst of summer, are kept from striking the cook at the fire, and if a sudden rain storm rushes over the camp the meal is not thereby delayed. For a large camp this shelter is a very good arrangement. This fireplace served many groups at one time during seasons past, the limit served at one time being about eight parties and when the camp was much used these groups cooked in relays.

Sanitary arrangements in city locations give little trouble but in rural locations the planning for those neces-



A FIREPLACE IN THE YELLOWSTONE NATIONAL PARK WITH WALLS OF CAST CONCRETE. FINE IN ITS PLACE, BUT NOT SUITABLE FOR EVERY LOCALITY

sities which will reasonably serve many people is more of a problem. Contamination of water supply will have to be guarded against and the fly problem will intrude. The best solution for many locations will be found in the flyproof pit privy properly located. The cost is low and if the campsite is laid out by a landscape architect, qualified to handle such problems, the public health will be entirely protected.

A very difficult problem in many rural locations is the establishment of a good water supply. Pumps and shallow driven wells may serve the purpose where there

is little chance of contamination from surface drainage. Probably in all locations a shallow driven well of this type is preferable to an open stream no matter how crystalline the water.

Stream water may do well in some locations in mountainous country, but there is always a chance of there being a source of contamination farther up stream. Water carried disease germs may be present in the clearest of water. This is true in the most remote portions of the forest and mountains though it is not usual to find any sickness caused by drinking water from a mountain brook far removed from civilization.

Springs often are reasons for locating picnic spots and camps. The location of a spring, in the past, has always been a point near which man took up his abode for it meant a continuous



A SPLENDID ARRANGEMENT FOR OUTDOOR COOKING IN A DELIGHTFUL LOCATION ON THE SAN ISABEL AT THE PUEBLO MUNICIPAL CAMP GROUND

supply of pure water. So springs today are often the best water supply of auto, picnic and vacation camps.

Several methods of making springs more usable, more attractive and more sanitary are commonly followed.



A SMALL BUT EFFICIENT COOKING FIRE-PLACE ON THE CAMP GROUND, VERY EASY AND INEXPENSIVE TO CONSTRUCT

The most common of these is to sink a barrel around the spring from which reservoir, fed from the bottom, the water is dipped. This method of utilizing springs is better than dipping water out of a muddy brook but the open cased spring is as liable to give the user disease as is the stream.

Another fault of the uncovered spring has been found where tourists frequent camp grounds. The spring is often used as a convenient wash tub. This sounds ridiculous, but it has actually been known to happen and that too at a point at which there was a running

stream of clear water less than fifty feet from the spring. So it seems that the only way to protect the public is to make the spring as foolproof as possible, which is best accomplished by wholly housing the spring in a covered and buried concrete container or catchment basin, and so arranging the overflow that it will fall through at least fifteen or sixteen inches from pipe, lipped rock or other spout where it may be collected for use by inserting a container under the fall.



CLEANLINESS BEING NEXT TO GODLINESS, THIS PUBLIC STATION ON THE CODY ROAD LEADING TO THE YELLOWSTONE COUNTRY IS EQUIPPED FOR THE CONVENIENCE AND COMFORT OF CAMP VISITORS, AND HAS AS WELL TWO FINE SHOWER BATHS

Probably one of the most highly developed camp conveniences that can be found in all the camps is found among the mountains of the west. It is the public comfort station within the Shoshone National Forest and on the Cody Road leading to the Yellowstone country. In this station, in addition to the usual arrangements found in such locations, are two shower bath equipments.

An ingenious plan arrangement has placed a stove in one end of this building and installed a large water front connected with a thirty-gallon range tank. A door from the outside opens into this portion of the small building, the entire water heating device being separate from the other two compartments. Fuel is plentiful here and a very little effort put forth by the camp visitor will give him the opportunity of getting a hot or cold shower bath. The degree of hotness attained is governed by how much wood the camper will feed to the stove and as the



BIG, CENTRAL CAMP STOVE BUILT BY THE CITY OF PUEBLO FOR ITS MUNICIPAL CAMP, BEING A SHELTER AND FIREPLACE COMBINED

entire water supply comes from a stream fed by melting snow the cold snappy finish to the shower is there.

Municipal, state, county and national provision for auto campers is a thing which has come to stay so long as the automobile is a commonly owned means of transportation. Wanderlust calls to each of us and the lure of the open highway beckons. More and more people will become gypsies of the auto highways, and there must be camps to accommodate visitors.

These camps are needed many places now and the coming few years will witness a greatly increased need.



THE METAL FIREPLACE SET IN CONCRETE, DEVELOPED BY THE CITY OF MINNEAPOLIS FOR OUTDOOR COOKING. WHILE RATHER EXPENSIVE IN ORIGINAL COST, IT WILL OUTLAST MANY OF CHEAPER AND LESS CAREFUL CONSTRUCTION

To keep these visitors from being unwelcome guests will be a problem. Camp areas properly equipped are the logical solution of these problems of taking care of our auto traveler-visitors. These need certain improvements and an attempt has been made to show what has been done so there may be better planning in the future.

PROTECT THE WOODS FROM FIRE

A tree will make a million matches—a match may destroy a million trees.

Take no chances with lighted matches, tobacco, brush, or camp fires.

Forest destruction is quick—forest growth slow.

Burned timber pays no wages.

When fire is discovered, put it out if you can. Get help if you need it.

Are you practicing fire prevention and forest protection?

HOME FOREST PAYS DIVIDENDS

A WELL cared for "home" forest will make the farm more prosperous, add to the comfort of the farm home, and enhance the value of the farm as an investment, says a new publication, *Forestry and the Farm Income*, issued by the Forest Service, United States Department of Agriculture. Farm forestry properly practiced supplies timber for farm needs, enables the owner to market surplus timber profitably, furnishes employment for men and teams in winter, makes waste land yield a profit, and increases the sale value of the farm. Even if a farmer sells no timber, the woodland pays, says the bulletin. The time and money saved by having firewood, fence posts, and material for repair and construction conveniently at hand, and the protection afforded the crops, farm buildings, and stock are worth considerably more than the slight trouble and expense of raising and caring for the trees.

Farm woodland need not occupy land that will grow other crops, it is pointed out. On the contrary, the trees should be located on ground too poor to cultivate. A little care given in the winter or at other times when the farm work is slack will make such land produce valuable timber. If fully stocked with trees and well cared for, an acre of hardwoods should grow from one-half to one cord of wood yearly, while pine should produce from one to two cords.

The prime essential for success in farm forestry, the bulletin states, is adequate protection against fires. Forest fires kill the little trees outright and weaken full-grown ones, so that they may become diseased or infested with insects. It also destroys the humus cover and causes depletion of the soil. Burning over the ground for the purpose of improving grazing is characterized as an expensive mistake. Although it is possible to secure green grass for the stock a week or two earlier in the spring by such a practice, many of the rich leguminous plants and annual grasses are killed, leaving only the hardy bunch, wiry, and other coarse perennial grasses.

When timber is needed, the cutting should be done so as to cause the least possible waste of valuable wood and should not damage other living trees. The first trees to be cut should be the dead or dying and deformed and diseased specimens, which shade out healthy trees. Less valuable kinds, such as gray birch, aspen, blackjack oak, dogwood, sow wood, blue birch, ironwood, and others, should be removed in preference to the more valuable kind. By following this practice the woodland is constantly improved and its value is increased.

Preservative treatment will considerably increase the life of timber which is used for fence posts and other similar uses, and is distinctly worth while. Treatment with coal-tar creosote has been found to be far the most satisfactory process.

WHAT THE TREE TEACHES US

BY E. T. MEREDITH, SECRETARY OF AGRICULTURE

THE Department of Agriculture is intensely interested in the matter of tree culture from every standpoint—utility, beauty and better home life. I was surprised the other day to read that there are more acres of trees in the farm lots of America than of any other single crop; in other words, there are more acres of trees on the farms than there are acres of corn, or acres of oats, and so on. These farm wood-lots yielded to the farmers something like \$195,000,000 in a single year, but they might, with systematic management and care, produce several times that much, and we could have more trees that would continue to be a beauty and joy for years and years, for ourselves, our sons, and their sons. We should all appreciate the value of a tree and what it means to us.

The other day I was asked to speak five minutes to some school children on this matter of planting trees, and I thought—I would lecture them a little. I hesitated to point out to the older ones as I did to the children some of the things the tree stands for, and yet it does seem to me that, if we stop to consider some of the things the tree teaches us, it may help us to lead better lives and be better citizens. As I told the children the other day, the tree, for one thing, keeps its feet firmly on the ground. It is a good citizen. It is a substantial citizen. The stronger the wind, the more uncertain the founda-

tion, the more firmly it attaches itself to the soil, the deeper it sends its roots until the solid foothold is secured.

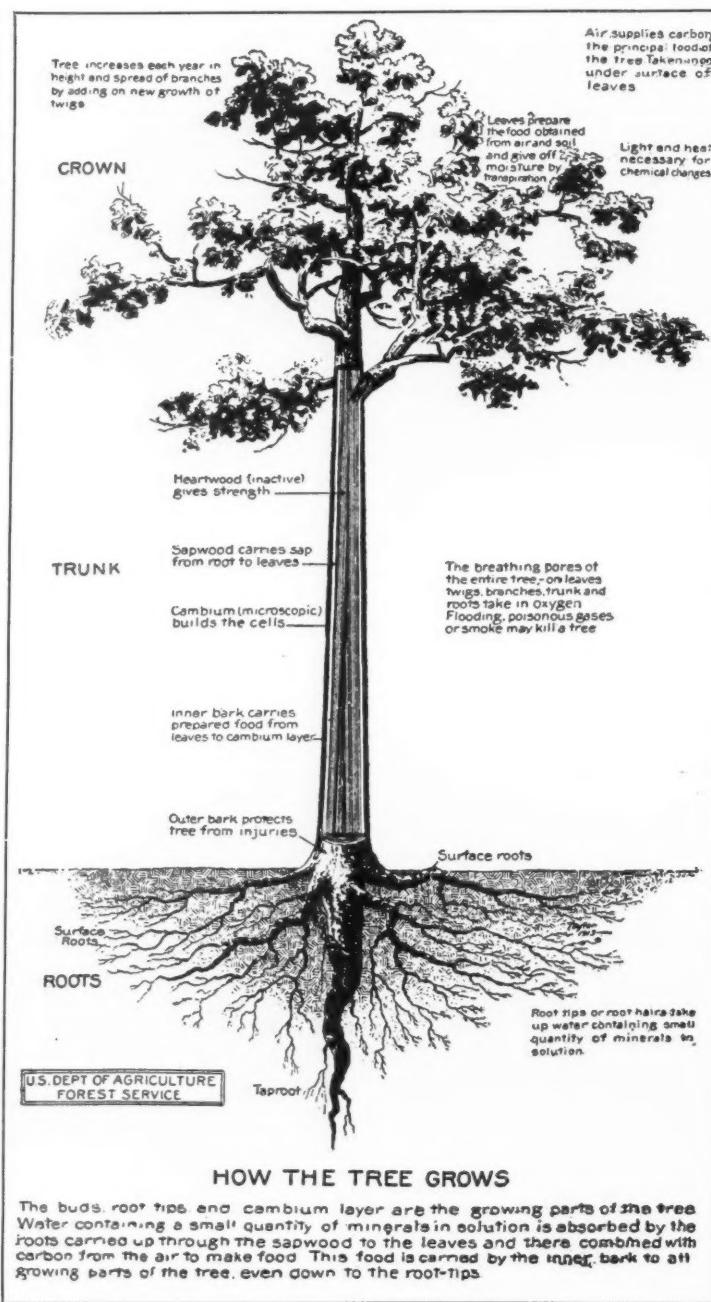
A tree has its hardships just like an individual. Every time there is a strong wind and it is blown back and forth, the tree is strengthened. In fact, it needs that bending back and forth to develop its powers of resistance just as we in our lives are made better because of our difficulties and hardships. If we meet them and overcome them, we are stronger and better in our everyday lives and in our attitude toward others. We are of better fibre.

If you plant a tree too close to others where it is shady it is deprived of its light—and to us education is light. Such a tree is either stunted or grows up in a narrow sort of way. It does not have a wide outlook. It is narrow in its view. The same is true with you and me. Unless we get light, unless we study and are educated, unless we broaden out and see the problems of others, we are likely to be narrow in our views.

The tree which is planted in the light spreads out and serves with its shade and beauty. The same with you and me. If we broaden

out, certainly we are able to serve and to "carry on" and do the things that constitute real service to our cities, our states, and our Nation.

Then, again, from this tree, with a small beginning, some great results may be expected. The same is true of



us, since from a small beginning, with proper study and light, we also grow and broaden. This very idea of tree planting originated with Secretary Morton, who thought out the plan simply as a means of beautifying the plains of Nebraska. The movement has grown until nearly every State and Territory in which you and I, as citizens, are interested has taken it up. It has also been adopted in the British possessions all over the world and in China and Japan, all which have their Arbor or tree-planting days. All that came from this suggestion of Secretary Morton, which was a small idea in the beginning. Now it has spread, and its leaves and branches have reached all over the world.

Then you and I also can take these suggestions from the tree that starts with such a small beginning. Those are some of the things I have told the school children. I hesitate to say them to you because as we grow older we feel that we do not need these suggestions; yet I do not believe they are lost upon you because I think even my telling them to the children did me good, and a reflection upon the tree as a model for us in our own lives will not be harmful to any of us.

If in this matter of spreading the idea of tree planting, there is any service the Department of Agriculture can render you, I know every person in the department will be glad to do so.

(Extract from remarks by Secretary Meredith at the Tree Planting Exercises by the District of Columbia Federation of Women's Clubs.)

ONLY DEAD TIMBER USED BY MARIE DICKORE

BEREAL College, at the foot of the Cumberland Mountains, has the unique distinction of owning two mountains, four thousand acres of forest, its own saw-



ONLY DEAD TIMBER IS USED IN THIS SAWMILL OF BEREAL COLLEGE, WHICH IS RUN BY THE STUDENTS OF THE SCHOOL

mill but never cutting a sound tree. The photograph shows the sawmill with the two mountains in the background. In the foreground are logs with great hollows

indicating that only fallen or dead timber is used in this sawmill. This wood is used for the college, for power, for heat and in the many cozy fireplaces in the dormitories and in the great open fireplace which delights every traveler who stops at Boone Tavern.

The sawmill, as well as the four thousand acres of forest reserve are under the direction of the Forestry Department and provide not only ample practical experience for the students of the department but also actual labor for those students who work for their education. The sawmill is operated by steam and, like every other industry at Bereal College, is run by students who work at least two consecutive hours per day under the supervision of a superintendent of labor, who in turn, is responsible to the Dean of Labor. Students at Bereal are given the opportunity to earn their expenses and they may select the work which is paid for at the regular rates according to the student's ability and efficiency. As every student in the college must work the minimum of two hours per day, suitable occupation must be provided by the Dean of Labor, and in the Forestry Department the students are very happy patrolling the forest, marking the dead timber, hauling the fallen timber to the sawmill, cutting it there for the required lengths, and then hauling the logs to wherever needed on the campus. No sound timber is cut as there is enough of the other to supply all needs.

WANTED—FACTS ABOUT SHADE TREES

SOME very interesting facts are coming to light through the investigation being made by T. E. Snyder, of the office of Forest Entomology, United States Department of Agriculture, of the number and value of shade trees throughout the country. Mr. Snyder is diligently collecting data on this subject, which will doubtless ultimately be compiled and issued as a bulletin by the Department.

The inventory and valuation of trees on streets and in the city parks of Newark, New Jersey, as of December 31, 1919, gives rather startling figures. The estimated totals read 134,232 trees, worth \$4,038,971, to which Superintendent of Trees Bannwart says must be added one hundred thousand dollars worth of trees (about 2,000) in the six hundred acres of "County Parks" within city limits.

From the City Park Department of Washington, Mr. Lanham is sending interesting information. He says it is a most difficult thing to estimate the great value of the trees on the streets of Washington, some 105,000 in number, but that often five hundred to a thousand dollars more is charged for a real estate lot with a tree on it than for an adjacent lot without trees.

Park superintendents, city foresters and others in a position to co-operate with Mr. Snyder in the collection of this information should communicate with him directly here in Washington, at the address given above. All data and estimates of this kind will be very helpful to him and such co-operation will be much appreciated by the Department.

"THE TIME IS COMING WHEN TIMBER WILL

COMMENT by editors of the country on the article in American Forestry in regard to the possibilities of cattle raising and reforestation in the South was wide spread. The editorial co-operation with the American Forestry Association in its campaign for a national forest policy continues to grow and as a result the nation is being aroused to the great need for action. The report of the Committee on Forest Conservation of the American Paper and Pulp Association also called forth much editorial comment calling for action. Some of the expressions of opinion follow:

Tampa Tribune: In a recent issue of the AMERICAN FORESTRY Magazine, Thomas P. Ivy says that "in casting about for a solution to the problem of the future supply of cattle and timber, one naturally visits the South, where our great coastal plains are today being denuded of trees and turned into range lands for cattle."

He finds that vast areas of these lands are available for both timber and cattle growing, and the question immediately arises whether it will be better husbandry to reforest these cutover places and protect them from the burnings which cattle ranging indulges in, or to turn them into exclusive cattle countries.

He says: "That part of the Southern States known as the coastal plain has conditions which are most favorable for the development of the cattle industry in conjunction with reforestation, provided there is applied to the problem a well defined national policy that will enable the owners of these lands through governmental financial aid to develop their holdings in accordance with their best possibilities."

Just what are "their best possibilities" is matter for the forestry, agricultural and livestock departments of our various universities and state institutions to decide on and make known to the people.

The time is coming when timber will be just as much a necessity as beef is today. It is more valuable, in point of dollars, to the grower now than is beef. It would be a shortsighted policy which would pursue the old course of the farmer of a few years ago who grew the thing that came first to hand, whether it paid best or at all, because he had been growing that and his father and grandfather had been growing it.

The Times-Union observed some time ago, if we mistake not, that "our uncleared lands are not our best grazing lands." It is true. There are areas of timbered range

in Florida where a cow would starve to death on less than ten acres. And yet there are those among us who persist in burning the grass with its possible young tree trying to fulfill nature's duty in reforestation, for the sake of getting this grass on ten acres to support a fifteen dollar bull.

Scientific and systematic cattle raising and reforestation are both much needed in the South, where we have reveled in the wanton prodigality of nature until her

for reforestation and keep from them any possible danger of damage by cattle or fire. Other areas should be set aside for cattle growing and should be protected from everything that makes for the injury of that industry. That would include cattle ticks, wild dogs and buzzards, which destroy new dropped calves, and scrub bulls. In other words, it points conclusively to the day of the open range and the free tick being at an end.

Christian Science Monitor: Just as everybody long ago came to understand that the prairies of the western central districts of the United States were synonymous with great herds of cattle, so now practically every one has come to realize that the steady encroachments upon these western cattle ranges for farming purposes has decreased the size of the herds. Almost everybody has apparently accepted it as inevitable that the number of cattle being raised should decline as the western lands were taken up by farmers. But one phase of the matter which apparently very few people in the country have yet appreciated is the neglected opportunity for at least partial counterbalancing of the herds displaced in the west by the raising of new herds on lands that are at present neither used nor occupied back east. The most valuable of these neglected lands are in the south. They represent great areas which have been cut over by the lumber interests, and are now lying idle, virtually as waste land. Lumber companies still hold great tracts of this kind, without doing anything to make them productive. And it is due largely to Charles Lathrop Pack, president of the American Forestry Association, that general attention is now being directed to the possibility of making these lands in the south contribute in a large way to the raising of cattle.

These lands are capable of feeding thousands of them at the same time that they are in this way, he declares, and you can, in addition, provide new forests to supply the wood needed by the country when the forests that are now standing shall have been swept away by the ruthless methods now characteristic of lumber production. All these purposes are desirable in the highest degree. The shortage of wood pulp and the high cost of building materials, now only too obvious as items in the daily news reports, are convincing evidence that the nation's forests, as well as its grazing lands, have been reduced below the margin of national safety. And if the southern states can readily be made to supply the lack, there is only one more opportunity for the south to hasten an industrial reclamation which has been going forward

strength is nigh spent before we have observed that her ration to us is growing short.

Speaking along this line the other day, the Montgomery Advertiser, which is in a state having great coastal plains being denuded of timber, and burned over for grazing every year, says: "Western farming interests are slowly encroaching on the preserves of the cattle breeders. The great grazing areas are being plowed under and sown to one crop or another. This is reducing the available cattle growing area of the country. At the same time we have steadily diminished the remaining supplies of virgin timber in the United States. The timber problem will one day be acute. Reforestation is essential."

Common sense, therefore, would indicate that at the earliest possible day this, and other States, should set aside certain areas

BE JUST AS MUCH A NECESSITY AS BEEF"

swiftly in that part of the country within the last two decades.

To anyone judging conditions in the United States purely on the basis of the relative density of population, it may be surprising to find that there are great areas of land practically unoccupied and out of use in sections where the population figures run high. We speak of "the populous east," having the Atlantic seaboard principally in mind, and often not even the people most familiar with actual population conditions there stop to realize what an acreage of practically unproductive land is still existent there, or what isolation is still easily to be found in the blank spots between the population centers. Massachusetts, for example, as the State having the greatest density of population of all the states, has still whole townships of vacant and virtually unproductive land. So what Mr. Pack now points out is worth noting, that the cutover lands, which mark the site of what was once an enormous forest of pine timber covering the coastal plain of the southern states, constitute 30 per cent of the total area of these states, or an acreage greater than the combined area of Alabama, Florida and Georgia; for it may be, as the forestry people are saying, that in this unproductive acreage is locked up the most important economic problem that now confronts the people of the United States.

Certainly there is general interest in the estimates of those who are calling attention to this matter. They say that these cutover lands of the south, on the lowest basis, would provide annual pasturage for over 10,000,000 head of cattle. That would be on a basis of about ten acres per head. And all the cattle now in existence in the United States number only about 68,132,000. If the southern states can carry one-sixth as many cattle as there are now in the entire country, apparently somebody should be getting busy about it, not only for the sake of the country, but for the sake of the south. And if three-fifths of these cutover lands that are now idle can be made to grow timber at the rate of 10,000 board feet per acre at the end of a timber rotation of fifty years, provided lumber and not pulp wood is desired, it is time something were done to start this new growth on its way. What can be gained meanwhile from turpentine operations, it appears, would give some additional momentum to the main purpose.

Of course the general direction and promotion of this sort of thing should enlist the attention and best activities of popular

government. Federal and State authorities have the best kind of opportunity for cooperative action, first in a comprehensive survey of the field, then in promoting the occupation and use of the land by those qualified to handle it intelligently, and then in such protective legislation and law enforcement as would foster development in accordance with the general economic purpose. Something has been accomplished by private initiative in this territory within the last few years. Thirty per cent more cattle and 75 per cent more hogs are being raised there now than were raised there ten years ago. But these efforts are small in view of the vast potentialities of the opportunity. Government co-operation seems necessary if the waste lands of the south are to be given their full economic effect.

Richmond Journal: As news of it spreads about, the country's interest in the "Hall of Fame for Trees," now being compiled by the American Forestry Association, steadily grows. The Hall has, by this time, many candidates, among the more recently nominated being the "Great Tree on Boston Common," around which the colonists assembled for battle with the British, and which was blown down in a storm in 1918. "The Green Tree Hotel" at Le Claire, Iowa, is also of receptive fame. This is an historic elm, well known on the Mississippi

River, because it was a waiting place for river men out of jobs and looking for trips. Its age is believed to be 120 years. Many Virginians to whom the old tree is a familiar sight, will be interested to learn that the Octopus tree, in Charles City County, has been mentioned for a place as the oldest and largest tree in the Old Dominion, and other candidates for this novel hall of fame include the De Soto oak, at Tampa, Florida, from which De Soto started for the Mississippi; the two oaks at Marlinton, West Virginia, marked in 1751 by General Andrew Lewis, and the tallest tree in the Balkans, at Podgoritz, nominated by the Red Cross, which had headquarters near it through the war, and from the naming of which it may be seen that the American Forestry Association does not intend to limit the honored ones to native products. This is but just, though America has enough to fill a respectable list exclusively her own if we will but take the trouble to look them up. For example, the first citrus fruit tree ever planted in Southern California, which now stands in the courtyard of the Mission Inn at Riverside, protected by a tall iron railing from the predatory instincts of unconscionable

tourists. Trouble necessitates interest, and that interest, it must be said, seems to be rapidly coming up to the mark, so that we may expect in time a Hall of Fame for Trees of actual historic value, even greater than its appeal to sentiment.

Jamestown, New York, Post: As the forests disappear before the increasing population and the demands of industry, the science of forestry is developing rapidly. The national and State governments are encouraging the study of trees as means of preserving and distinguishing them. Trees are the largest and finest product of vegetation; therefore, in addition to mere utilitarian purposes they are desirable for their beauty. The American Forestry Association is registering all memorial trees in a national honor roll. This encourages planting of memorial trees. Those who cannot visualize the future beauty of these roads may wait long years to be impressed with their magnificence. Then, perhaps, others will begin to follow their example. Every new highway of importance is an opportunity for expression of civic pride in this way. Patriotic organizations of Jamestown and Chautauqua County have not yet been impressed with the idea of memorial trees, yet there are opportunities on every hand to place memorials to the honored dead, so that every traveler cannot fail to see and know and remember why the trees are there.

Ogden Standard: The announcement of the American Forestry Association at Washington to the effect that officers of the American Legion and of the Service Star Legion in every State are planning to plant memorial trees, recalls the claim made by an Indian town that it has the most famous street.

There are five houses on Lincoln Street in Crawfordsville, Indiana, and from those five houses went nine boys to the war for humanity.

There is a big tree on that street. It is called the Dumont Kennedy elm and all those nine boys played under that tree. In commemoration of the service these boys rendered in volunteering for trouble at the Mexican border and later going to fight abroad this tree has been dedicated as a memorial. Senator James E. Watson made an address in connection with the celebration held in the street.

The American Forestry Association wants to know if there are other trees with a history for its Hall of Fame. After all is said a tree makes a beautiful memorial and the move to plant thousands of trees in memory of brave men and women is highly commendable.

NATIONAL HONOR ROLL, MEMORIAL TREES

Trees have been planted for the following and registered with the American Forestry Association, which desires to register each Memorial Tree planted in the United States. A certificate of registration will be sent to each person, corporation, club or community reporting the planting of a Memorial Tree to the Association.

SANTA BARBARA, CAL.

By Friends of John Black Clarke: Lieut. John Black Clarke.

GUILFORD, CONN.

By Darrow Post No. 48, American Legion: Burton Monroe Lee, Herbert Hamilton Hall, Charles W. Darrow, Frank H. Bishop.

CLAYTON, DEL.

By Mrs. Alice F. Sinex: David Clouds Harrison, Bailey Stuart Ashby.

CHICAGO, ILL.

By Irving Park Women's Club: Sergt. Alexander J. Dunn.

CHICAGO HEIGHTS, ILL.

By St. Ambrose Episcopal Church: Norman E. Gilbert.

FREEPORT, ILL.

By Daughters of the American Revolution: Capt. Arthur F. Mosley.

OAK PARK, ILL.

By George Rogers Clark Chapter, Daughters of the American Revolution: Lloyd Havns Ghislain.

ROCKFORD, ILL.

By Harlem Consolidated Schools: C. C. Burns, Earl Pallott, Irving Pearson, Harry Thomas, Walter Collins, Lester Miller, Clarence Cusson, Willard Clarke, George Collins, Julius Faust, Curtis Lovejoy, Seymour Maltress, George Easton, Wesley Morgan, George Evans Burritt, Honore Cusson, Harry Lee, William Mullens, Ward Fabrick, Clyde McFarland, Gene Heldridge, Sergt. Alfred Pickard, Lieut. Paul Conklin, Carlyle Corson, Mr. Love, Arthur Shrom, William Budd, Walter Budd, Ralph Blackinton.

BLOOMFIELD, IND.

By Wednesday Afternoon Reading Club: Rev. Merritt Owen, Rev. J. A. Spencer.

SULLIVAN, IND.

By Women's Club: Sullivan Boys who died in the Service.

MARION, LIMA COUNTY, IOWA

By the Cary Club: Sergt. Joseph H. Baroske, Everett J. Leasure, Leo G. Marchant, Justin M. Lillie, George L. Foulk, Clifford Murphy, Howard B. Brennenman, Earl B. Dodds, Cecil Harlan Biggs.

LEXINGTON, KY.

By University of Kentucky: Dr. J. H. Kastle.

NORTH BERGEN, N. J.

By North Bergen Public Schools: Betsy Ross, George Washington, Henry Clay, William McKinley, Theodore Roosevelt, Old Faithful, Victory, Gen. John J. Pershing, Fifth Grade Beauty, Abraham Lincoln, Woodrow Wilson, William Penn, Christopher Columbus, Ulysses S. Grant, Robert Fulton, Alexander Hamilton, Liberty, Benjamin Franklin, Henry W. Longfellow.

CRAWFORD, NEBR.

By George H. Adams: V. H. DeBolt. By Mrs. T. F. Golden: Hugh Golden, Victor Golden. By Mrs. Ervin D. Heltzel, Dr. Ervin D. Heltzel. By Mrs. G. V. Higgins, William E. Higgins. By Nannah Kennedy: Virgil C. Kennedy, Earl D. Kennedy. By Mrs. Harold King: Harold King. By Commercial State

Bank: Cecil Lyon. By Esther McDowell: Robert E. McDowell. By Mrs. James Nestor: Francis Nestor. By Mrs. Harry Strohmeyer: Harry Strohmeyer. By Mrs. Page Francis: Frank Francis. By Mrs. J. A. Habagger: Edmund Habagger. By Mr. and Mrs. C. L. Leithoff: Merlin Remington, Thomas Remington. By Mrs. Henry Rennau: Claude Rennau. By Mrs. Bessie Wallin, Sergt. Thomas H. Smith. By Mrs. H. Lindeman: A. A. Lindeman. By Mrs. Laura Howe: Arthur P. Howe. By Mrs. J. A. Wolverton: Sergt. Frank Wolverton. By J. H. Barnum: George Barnum. By Mrs. W. O. Barnes: Homer Barnes. By Mrs. J. E. Porter: W. J. B. Porter, Lieut. O. W. Percy. By Dr. D. F. Richards: Frederick W. Hynes. By Mrs. J. W. Burleigh: James E. Smith. By Tha Slider: Lawrence Arthur Slider, Clarence Everett Slider. By F. A. Diehl: Frank Andrew Diehl. By Mrs. B. F. Johnson: Corp. Archie F. Johnson. By Eula Barton Ivins: Lynne S. Barton. By Ray Moss: Roy Moss. By Mrs. Martha Ela Cullers: Arch Cullers. By Ellen Juden Sleeper: Lieut. Louis K. Juden. By Albert Lindeman, George E. Lindeman, Henry Lindeman. By Gwenn Wiggins McDowell: Verne Wiggins, Ernest Wiggins. By J. H. Ballengee: Paul F. Ballengee. By Ralph McHoes: Wayne C. McHoes. By C. A. Minick: Charles A. Minick, Jr. By Altar Society: Chaplain J. P. McMahon.

GUIDE ROCK, NEBR.

By Commercial Club: Our Living Soldiers Who Have Returned From the Great War. By Woman's Club: Our Soldier Boys Who Paid the Supreme Sacrifice in the World War.

BINGHAMTON, N. Y.

By Civic Club: Kenneth Ashton Copeland: James K. Nichols.

BUFFALO, N. Y.

By Hutchinson-Central High School: Hutchinson-Central High School Boys Who Gave Their Lives to Their Country During the Late War.

MINEOLA, LONG ISLAND, N. Y.

By the Agricultural Society: Soldiers Who Died at Base Hospital Here, Theodore Roosevelt, Efigham Lawrence, John Harold, Thomas H. Bacon.

HERKIMER, N. Y.

By South Side School: Carey J. Walrath, Toney George, John Myers, Leroy Foltz, Carlton Walrath, Joseph Kessler, Leslie Hellonack.

PENN YAN, N. Y.

By Penn Yan Board of Education: Lester Chisholm, Valentine P. Allen, Roy Bassage, Gerald Fisher, Warner Psynear, Alfred Williams, Harold Johnson, Frank Waddell, Charles Costello, Fred Moran, Gerald McAdams, Carl Bromley, Philip Rilling, Sidney Vermilyea, Wesley Benedict.

NEW YORK CITY

By David W. E. Allen Post, American Legion: David W. E. Allen, Attilio Minarvini, Lester Brown, Peter Lonergan, Walter H. Lawrence, John A. Bickhardt, Ralph R. Malcolm, Albert P. Kovar, George T. Davis, William Wolfberger, Michael J. Ressner, Victor Guarini, Thomas F. Donovan, Sidney Fortner, Arthur Boyce, Glen E. Walter, Arthur H.

Andrews, James Harper. By Harlem Board of Commerce: For Those Who Served, St. James' M. E. Church, For Those Who Served, Mount Morris Baptist Church, For Those Who Served, Reformed Church of Harlem, For Those Who Served, Holy Trinity Episcopal Church, For Those Who Served, Congregation Mount Zion, For Their Supreme Sacrifice, Reformed Church of Harlem. By Francis Galwey: Corp. Thomas Galwey. By George C. Webster: Churchill Pyer Webster. By Parents Association: Alfred Buxbaum, John Vincent Daniels, Johnathan Hansen, Lieut. James J. Hoffman, John Cook Henshaw, Edward J. McNulty, Edward J. Martin, James J. Roman, William Albert Spence, David A. Seery, Harry Stoff, Emanuel Vanderporten, Matthew John Weldon, James Scott, Tony Tanalo.

WANTAGH, LONG ISLAND, N. Y.

By Wantagh Memorial Congregation: Bergen Raynow Seaman.

CANTON, OHIO

By Mrs. Mary E. Bowman: Sergt. Stanley S. Bowman. By Lincoln Highway Memorial Association: Fallen Heroes of Stark County.

MARTINS FERRY, OHIO

By Service Star Legion: Miss Neville J. Eberly, Miss Loretta A. Reasbeck, William J. Boehm, Harry King Cochran, Ellsworth Conley, Charles Criswell, Job Reese Harris, Stephen Claire Haughton, John Perry Holly, Maurice M. Kinsey, Alfred Lawfield, Clarence William Marquardt, Alfred H. Miller, A. J. McKay, Joseph Pisano, Carl Rossler Pratt, Edward Tate, Bertrance Taylor.

MASSEILLON, OHIO

By Lincoln Highway Memorial Association: Lieut. Murray K. Spidle. By Junior Order of American Mechanics: Walter Wolf. By Knights of Columbus: Lieut. Walter Clements. By Post Office: Melville Hose.

NORTH INDUSTRY, OHIO

By Lutheran Church: Sergt. Stanley S. Bowman.

XENIA, OHIO

By Mrs. Charles Jabe: Rev. John Ely.

CORVALLIS, OREGON

By Oregon Agricultural College: E. B. Blackden, Owen W. Johnson, Richard W. Wilmot.

CLARENDON, PA.

By Miss Bessie M. Driscoll: Franklin L. Mattison, Marshall O. Larsen, Raymond Bines, Raymond W. Welsing, Hugh McGovern.

DUNMORE, PA.

By Dunmore High School: Anthony Angerson, Thomas Bonavoglia, Everett J. Bushweller, John M. Clark, Salvatore Colimino, Joseph Ambrose Collins, William Cupple, Peter Demko, Joseph Dombrowski, George E. Dornhein, Jerome F. Dougherty, John J. Ferguson, Anthony Edward Gettings, Leo Cray Healey, A. Pierson Hurd, John H. McHugh, Benjamin McLean, Michael Medico, Anthony Mooney, Patrick J. O'Hara, Leonard J. Preston, Andrew Oliver Reynolds, Benjamin Richards, Joseph P. Ryan, Duane S. Salsberry, William Santarsiero, Jerome Simonson, Charles Skipper, Samuel Smith, Andrew Summo, Howard Swingle, Lloyd Gail Wilcox, Webster Altemose, Raymond Kunz.



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CANADIAN DEPARTMENT

BY ELLWOOD WILSON

PRESIDENT, CANADIAN SOCIETY OF FOREST ENGINEERS

LATE in 1919, Mr. Robson Black, of the Canadian Forestry Association, wrote Sir John Stirling Maxwell, suggesting an Imperial Forestry Conference. The British Forestry authority took up the matter and invited the British Dominions and Colonies to send delegates, and 35, from all parts of the world, met in London on the fifth of July. There were present 54 associate delegates. Canada was represented by Messrs. E. H. Finlayson, Forestry Branch, Ottawa; Clyde Leavitt, Commission of Conservation; Robson Black, Canadian Forestry Association; Mr. Kilbey, Canadian Government Railways; M. A. Grainger, Chief Forester British Columbia; Avila Bedard, Assistant Chief Forester, Quebec, and Ellwood Wilson. The meetings were held under the Chairmanship of The Lord Lovat, K. T., K. C. M. G., D. S. O., Chairman of the British Forestry Commission. The first day was spent in visiting the British Empire Timber Exhibition, and the second, in a visit to Kew Gardens, the celebrated Royal Botanic Gardens and Aboretum in London. The opening session of the actual work of the conference was held in the morning of the seventh of July, in the historic Guild Hall, and addresses were made by the Lord Mayor of London, Lord Milner, the Lord Lovat and several of the delegates. The Forestry Commissioners entertained the delegates at lunch and in the afternoon in the Council Chamber of the Guild Hall, the delegates presented their reports on the forest resources of the various Dominions and Colonies. These meetings were very impressive and especially the afternoon session when a mass of information on the forest conditions and resources of so large a part of the world was brought together. No such authoritative statements had ever been prepared and the conference had before it up-to-the-minute data for the study of forestry and timber supplies the world over. In the evening the delegates were entertained by the Forestry Students Society of Oxford, Cambridge and Edinburgh Universities. At this banquet, Sir William Schlich spoke most interestingly. The next day the delegates left for a trip through the Crown Forests of Dean, Highmeadow and Tintern, as the guests of the Forestry Commission and spent three delightful days in tramping through Dean Forest situated in the West of England and in getting acquainted with one another.

The Forest of Dean lies between the Rivers Severn and Wye in the west part of the County of Gloucester. This forest

contains 18,700 acres under management and also a freehold of 15,594 acres, but, owing to the legal position, only 11,000 acres of the forest can be enclosed at any one time, so that the whole area cannot be placed under management. This area has been reserved as a forest since the earliest time the term "forest" originally meaning an area set apart for hunting and having little of its present meaning. This forest was originally oak and was used for supplying timber for wooden ships.

The greater part of the actual forestry work was first undertaken in 1808, and by about 1832, 11,000 acres had been planted up. In the early days the trees, on account of naval requirements, were grown with large spreading crowns in order to obtain knees for ships. After wooden ships were discontinued an effort was made to grow the trees taller and straighter. A great many plantations of exotic species have been made, including Douglas fir and Sitka spruce. These two species make remarkable growth and those of the delegates who were familiar with British Columbia said that the growth was certainly equal if not greater than that in their native habitat.

Oak is perhaps from one to one hundred years old, and the coniferous species from one to eighty years old.

The delegates were quartered in Speeche House, still belonging to the Crown, and in which in early times the old Verderer's court was held for trying cases of crimes against the Forest Law. These were very severe in the early days, and a man would lose his life or be mutilated for killing a deer and often a hand was cut off for killing rabbits or smaller animals.

The prices received for wood cut in these forests are rather interesting: Oak over ten inches, forty cents per cubic foot felled, lying in the road. Oak under six inches to ten inches about twenty-four cents per cubic foot felled. Beech, seventeen cents per cubic foot felled; Larch, thirty cents per cubic foot felled; Spruce, twenty-two cents per cubic foot felled; wood, for use in the mines, hardwood, \$10.00 per ton; free on rail and coniferous species, \$12.00 per ton, free on rail. Hardwood, cut into cord wood \$5.00 per ton, free on rail.

The forest is in charge of a deputy surveyor, with a head forester and thirteen foresters with definite beats and charge of gangs working in these beats. The average number of workmen employed is 140 to 160.

The receipts in the Forest of Dean, for

the period 1908 to 1918 amounted to \$389,000, and the expenditure \$440,000, making a deficit for ten years of about \$50,000.

The Forest of High Meadow comprises about 3,580 acres, of which 3,349 are under timber. This was purchased by the Crown in 1817 and further purchases were made in 1824 and 1828. At the time of purchase, the timber was between 50 and 60 years old, and about a thousand acres were planted with oak between 1825 and 1850.

Larch has been freely introduced in groups among the oaks to replace the matured standards cut out, but in most cases the groups were too small and the surrounding oaks were tending to close in over the larch. In 1911, a system of clear cutting and replanting at the rate of approximately a hundred acres per year was begun. A new working plan is now in course of preparation for these woods. The best of the soil will be given over to oak and the remainder will be planted with conifers and ash.

The prices ruling in the woods are practically the same as those in the Forest of Dean, but there is a larger quantity of good oak timber which sells up to 52 cents per cubic foot in the woods.

The excess of receipts over expenditures for the period of 1908-1918 amounts to about \$1,000.

The Forest of Tintern, situated on the left bank of the River Wye, between the towns of Monmouth and Chepstow were purchased from the Duke of Beaufort in 1901 and contain 3,200 acres. The object of management since 1914 has been the production of coniferous and hardwood timber of good quality and also a supply of small wood for local turnery industry. A great bulk of the material which is cut in the wood is used for mining purposes. This applies to both hardwood and smaller coniferous poles. The better class larch poles are sold for telegraph purposes. The smaller hardwood material is utilized in the manufacture of chair legs, et cetera. Practically all the material is felled by the Crown and is disposed of to timber merchants. The prices run somewhat higher than in the other two woods.

The balance of receipts over expenditures for the ten-year period has been \$36,000.

On July 10, the main body of the delegates returned to London while a special committee of thirteen remained at Tintern Abbey to discuss the policy and general conduct of the conference just in session. This meeting was held in the Beaufort

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Arms Hotel at Tintern, overlooking the ruins of the famous Abbey of that name and the beautiful valley of the Wye River.

On Monday, July 12, the delegates met in the morning to elect a president and to decide on the procedure and form of an address to the King. After that there was a general discussion of the responsibility of the States for forest policy and it seemed to be the general opinion that as forestry was a long time business, that the State was certainly responsible for the management of forest lands owned by it and there was also the opinion that a certain amount of supervision over private forest holdings was the duty of the State.

In the afternoon a description and discussion of the Forestry Departments of all the various countries represented was held and much interesting information on these points was secured.

On the 13th, methods and problems of technical forestry were discussed, including fire protection, reforestation, utilization and so forth.

In the afternoon the subjects of education and research were talked over, and it was the consensus of opinion that for England, at least, it would be better to have only one forest school, rather than the three which exist at present. It was also decided that a central Forestry Bureau for the exchange of information to be a sort of clearing-house for all sorts of forestry matters should be set up in London and also that some Central Bureau of Research which did not trench on any of the work being done by similar organization should also be established.

On the 14th of July, the resources of the British Empire and the consumption of forest products were also discussed together with the scope for Imperial development. As different parts of the Empire have different kinds of timber and differ-

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ent needs, it was hoped that there could be an interchange of products between them so as to make the Empire self-supporting in its forestry needs.

From the 14 to the 20th of July, a tour of Scottish forests was made, and on returning the committee which had been appointed at the previous meeting presented their report, resolutions were discussed and adopted and on the 21st an address was presented to the King at Buckingham Palace from the conference.

In the afternoon, there was a discussion of the foundation of an Imperial Forestry Bureau and the session concluded by a banquet to the delegates given by His Majesty's Government.

On the 23rd a visit was made to Windsor Forest with a luncheon at the Royal Hotel Ascot.

In every way the conference was a great success and should be one of the brightest mile-stones in the history of forestry. The fact that the British Empire sees the need for proper forestry management of its timber resources and that men were gathered together from all parts of the world to discuss these questions in common is of the very greatest importance.

To sum up generally one's impression of this conference, the first thing was the splendid hospitality of the Forest Authority's members to the delegates. The meetings were conducted in the most business-like way that the writer has ever seen and moved more smoothly and a greater amount of work done per unit of time than it has ever been his experience to witness.

The delegates were promptly in their places at the opening of the sessions; speeches were short, business-like and without oratorical efforts and when anyone commenced to get on the subject which was being discussed by the conference he was

promptly brought back to the matter in hand.

Lord Lovat, as chairman, handled these sessions in a most masterly manner, and to him is due a great part of the success of the conference.

The English Authorities did all in their power to encourage the delegates from overseas to express their opinion and to take the major part in the debate and in all the proceedings, and their fine hospitality will never be forgotten by any of those present.

The problems confronting foresters in all parts of the world were found to be practically the same; lack of money, lack of continuity of policy, lack of trained personnel, lack of definite information in regard to forest resources, interference by political authorities, lack of definite forest policy and an insufficiently formed public opinion were found to be common to all the countries represented.

The setting up of a Forestry Commission in Great Britain has been a wonderful step in advance and this commission has been given a free hand and an appropriation of 15,000,000 pounds to be spent in reforestation of waste land and to encourage private planting for the next ten years. Great Britain learned a lesson during the war in its lack of timber supplies, and the necessity of importing everything from overseas. The present policy will be to establish sufficient forests to fill the needs of Great Britain for three years should any future war occur.

The situation in India was perhaps the best of any country because there Forest Authority has the full backing of the Indian Government and as this great dominion is not a democracy, the necessary power to establish a definite policy and to insure its continuity is present.

PULPWOOD TIMBER

— IN —

Alaska, California and Montana

The United States Forest Service wishes to invite the attention of paper manufacturers and other interested persons to several available areas of pulp timber with possible water power development, located within the Tongass National Forest, Alaska; the Plumas and Tahoe National Forests, California, and the Blackfeet National Forest, Montana. Information regarding these areas and the conditions under which the timber may be purchased will be furnished upon request by the District Forester, Missoula, Montana, with respect to the Montana area; the District Forester, San Francisco, California, with respect to the California areas, and the District Forester, Portland, Oregon, with respect to the Alaskan areas.

Pulpwood Timber Tracts

Canadian restrictions on exportation of crown licensed timber and a vanishing source of pulpwood supply in the United States have lead to the buying of many large tracts of freehold pulpwood, both for immediate operation and for reserve, within the last few years. Is your supply insured? There are now available a few desirable tracts, one of which may meet your requirements. Let's talk it over.

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SALE OF TIMBER

KLAMATH INDIAN RESERVATION
CALIMUS-MARSH UNIT

SEALED bids in duplicate, marked outside "Bid Calimus Marsh Unit," and addressed to the Superintendent, Klamath Indian School, Klamath Agency, Oregon, will be received until two o'clock P. M., Pacific time, Wednesday, October 27, 1920, for the purchase of the merchantable timber on the tract in Townships 31, 32, 33 and 34, Ranges 8, 9 and 10, Willamette meridian, Klamath Indian Reservation. The said unit includes about 87,000 acres with a total stand of approximately four hundred fifty million feet of timber, principally western yellow pine, of which about fourteen million feet is on about 2,500 acres of allotted land, as to which separate approved contracts with the Indian owners may probably be made. Each bid shall state the price that will be paid per thousand for yellow pine, sugar pine and incense cedar, and for other kinds of timber that will be cut and scaled prior to April 1, 1924. Prices subsequent to that date are to be fixed by the Commissioner of Indian Affairs for three-year periods. No bid will be accepted for less than \$4.00 for yellow pine, sugar pine and incense cedar and \$1.60 for other species during the period ending March 31, 1924. Each bid must be accompanied by a certified check on a solvent national bank drawn in favor of the Superintendent of the Klamath Indian School to the amount of \$40,000.00. The deposit will be returned to unsuccessful bidders, but retained as liquidated damages if the successful bidder shall not execute contract and furnish satisfactory bond for \$50,000.00 within sixty days from the acceptance of his bid. The right is reserved to waive technical defects and to reject any or all bids. For copies of contract and regulations, fuller description of the sale area, and other information, apply to the Superintendent of the Klamath Indian School, Klamath Agency, Oregon.

Washington, D. C., August 10, 1920. CATO SELLS, Commissioner.

With only one exception, all the foresters present, except those from Canada, were in favor of establishing and maintaining forests by plantation rather than by natural reproduction. The general reason for this was that under natural reproduction many undesirable and weed species take the place of valuable species or seed in along with them, making their management difficult and it was felt that planting was cheaper and a better means towards establishing forests.

This conference was so successful that it has been decided to hold one every three years and the next one will be held in Canada in 1923.

Messrs Clyde Leavitt, Avila Bedard and Robson Black made a trip through Holland and Belgium to the battlefields of France and some of the French forests after leaving the Forestry Conference in London.

The Society of Northeastern Foresters held their annual meeting in Canada this year, arriving in Montreal on the 27th of July and proceeded by train to Berthier where they were the guests of Mr. G. C. Piche, Chief Forester of Quebec, and after lunch visited the Government nurseries and plantations on the sand dunes along the C. P. R. Railroad. They were much impressed by the good results obtained on the drifting sand, especially in regard to the spruce trees.

On leaving Berthier, they went to Grand'Mere and from there to Proulx, the headquarters of the reforestation work of the Laurentide Company.

Wednesday and Thursday were spent in inspecting the plantations, and Wednesday night a business meeting was held. On Thursday night there was a general meeting in which the eighteen members of the Northeastern Forestry Society were joined by fourteen Canadian foresters and a joint discussion of the demand for the removal of the embargo placed by the Quebec, Ontario and New Brunswick Governments on wood cut from Crown lands for export was thoroughly discussed.

On Friday morning, the party proceeded to Grand'Mere and inspected the plantation of the Laurentide Company and the mills and were the guests of the company at lunch. In the afternoon, fifteen of the members proceeded to Lake Edward as the guests of the Commission of Conservation and Doctor Howe, of the University of Toronto, where the experimental station of the commission, in co-operation with the Laurentide Company, was visited. Here they saw the sample plots and sample cuttings that have been made and were much interested in the results obtained.

Mr. Austin Cary, who represented the United States Forest Service at the meeting, afterwards proceeded to Quebec to discuss the work of the Provincial Government with the Chief Forester. He expects after that visit to go to Montreal to talk over the work of the Riordan Paper

Company with Brigadier-General J. E. White.

Captain H. A. Peck visited the Aviation Station of the Laurentide Company in order to inspect the work done in mapping the forests by aerial photography and also took a flight over the limits of the Laurentide Company to have our method explained to him. Captain Peck has been investigating the subject of airplanes or seaplanes for use in forestry and logging work for the Riordan Company and he was much impressed with the photographic work done by the Laurentide Company.

Mr. Roland D. Craig and Doctor Swaine of the Commission of Conservation and the Dominion Entomological Branch, were at the meeting of the Northeastern Foresters and afterwards took a trip in the Laurentide Company's seaplane, piloted by Lieutenant Stuart Graham, in order to see for themselves what kind of work could be done in reconnaissance on a large scale such as the Commission of Conservation is doing in a forest survey of Ontario. They were much pleased with the results of their flight and very enthusiastic about the possibilities of the machine.

FOREST GUARD KILLED WHILE FIGHTING FIRE

WHILE directing from the air the work of 100 or more fire fighters, battling blazes raging in the Lassen National Forests at Alturas, California, three men, two non-commissioned army officers and a government forester, fell over 1000 feet to their death on July 10, when their airplane went into a tail spin and plunged to the ground. News of the fate of the trio was received by officers of Mather field, a government flying field in California. The victims were:

Sergeant Wayman T. Haney,
Corporal — Salcida.

Forest Guard Benjamin H. Robie.

Since July 4 flames have been sweeping the Lassen timber district. Aviators and foresters of the United States forest patrol service have been directing the work of volunteer fire fighters, circling over the blazing area in planes. When the fire appeared to be fairly under control, flames burst out anew in several places and late on the night of the 10th, the volunteers busily attempting to stem the fire's progress, were startled to see the plane suddenly go into a tail spin and shoot downward.

The machine landed at a spot where the flames were burning fiercely and if the occupants were not killed outright they undoubtedly were burned to death.

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BOOK REVIEWS

VACATION DAYS IN COLORADO'S NATIONAL FORESTS

BOOKLETS with good information concerning the out-of-doors are always sought by those who are looking for some attractive place to spend their vacation. The government puts out some of the most interesting of pamphlets describing the many vacation lands of the National Forests. It is planned to keep the readers informed of these as they come out and where they may secure copies for their use.

"Vacation Days in Colorado's National Forests" is one of the first of these booklets to be issued and if those which follow show improvement it will be only because this one first publication has given an incentive to publish something that is distinctly worth while.

The booklet is bound in an attractive cover inside of which there is a directory of all the National Forests found in Colorado. Following that there is a general introduction to the idea of forest recreation and the National Forests. Then follow descriptions of all of the forests in Colorado which tell in each case of some of the more striking scenic features of that forest. Trips are outlined, camps are located for the tourist and the height of the greater peaks in each area is noted. Information as to how to reach each forest is given and that with the directory of forests in the front of the book insures a ready source of information to all those who possess the booklet.

In the back part of this booklet is found a short sketch telling how the forests are administered and of the great wealth found here. A short discussion of fire prevention and camp sanitation is found following this and the remainder of the booklet is given over to lists of equipment for camp trips, the rations needed for men in camp, the tree zones of the mountains, a photographic exposure table for Colorado and a map of the State showing the forests, cities and railroads.

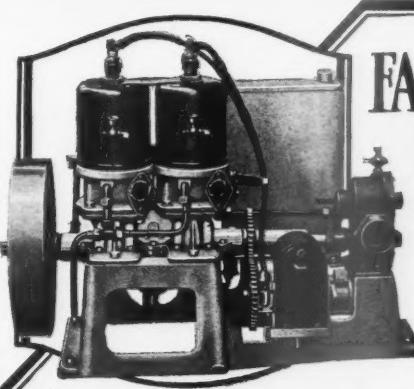
This will prove a very interesting booklet to anyone who is planning on visiting the west or who has spent time in the Rockies. There are many fine pictures printed in its pages and the reading matter is far from dull. A copy will be sent free of charge to anyone if they will write the District Forester, Denver, Colorado, and ask that they be sent "Vacation Days in Colorado's National Forests."

THE Report of the Forest Service, made in response to Senate Resolution 311, introduced by Senator Capper, on "Timber Depletion, Lumber Prices, Lumber Exports, and Concentration of Timber Ownership," together with a summary of this report, containing the recommendations in full, are now available. Application should be made to the Superintendent of Documents, Government Printing Office, Washington,

D. C., the full report costing 25 cents and the summary five cents (stamps not accepted).

With regard to these reports, the Forest Service is calling especial attention to the first of the recommendations for Federal legislation. This recommendation is for a substantial increase in the existing co-operation between the States and the Federal Government in the work of forest fire prevention. If we are to have timber in the future, we must stop burning our forests now. At present the Federal Government is co-operating with 25 States in fire protection work, but on a very inadequate scale. Therefore, the recommendation for increased co-operation was placed first as being most urgent. The public interest in these matters is intense and the demand for the publications insistent.

THE Forest Club Annual for 1920 is now available. It is the official publication of the Forest Club of the University of Washington and comprises a 100-page book covering the activities of the College of Forestry, containing scientific and popular articles about forestry and lumbering, as well as a complete roster of the students, ex-students and alumni. Owing to the present urgent need for putting our forests on a permanent production basis in order to insure a regular and permanent timber supply, this problem has been especially emphasized in this issue. The *Annual* is published and financed entirely by the students of the



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College of Forestry. It is full of interesting material and may be had by applying to the Forest Club, University of Washington, Seattle, Washington, at seventy-five cents per copy.

ANOTHER WORD ON LIGHT BURNING

(Continued from Page 548.)
berry. If we are to have timber, and surely we shall need it, nature's way is not sufficient ever if we could leave her alone in her work. We need to do with the forest as we do with the field of the farmer, we need to have every acre of forestland bearing a crop worthy of care and attention.

But the fact remains that while Congress is unwilling to spend more than about one-tenth the sum required to care for the peoples' forest properties; while the States and individuals do practically nothing, as is still the case, in spite of the "big talk," so long it must seem to many people, just as it does to Mr. White. What is the use of this partial protection which merely piles up the stuff for the next big fire? To this we can only say: Have a little patience; remember that the Forest Service is only 15 years old; that it has stopped hundreds of bad fires and that Congress and the people are learning.

That we need the change is evident when beech logs which 25 years ago had no sale value at all, can now be sold for \$120 per thousand board feet here in Michigan; when ash brings \$150 and oak flooring \$300, and a single white pine tree sold for \$250 on the stump.

We in Michigan and the East are coming to California for our lumber now and what will be the situation 50 years hence? It is encouraging to see men like Senator Capper of Kansas see the pressing needs of our country and start some movement of promise.

What will the campaign for "light burning" in California accomplish? Hard to say. The first thing it will do is to start incendiaryism; the wholesale burning by every feeble-minded or evil-minded herder, rancher, etc.; it will educate the people to the same position so often met in South and North, where the jury refuses to allow guilt because of the doctrine; it will cost California millions; it will lessen the forest supplies of the Nation; it will prevent millions of young trees and thousands of fine young stands of pine from growing into anything fit to cut; it will delay the start for real forestry by half a century, and it may spread the evil doctrine to the rest of Western forests and revive it in the South and East. What to do? Stop campaigning until we really know. This can be settled by experiments and the Forest Service, as I understand, is now planning for just such experiments where the advocates of light burning can be on hand and help on the job. In the meantime, respect and enforce the law and lock up the firebug.

TOPIARY IS BEING REVIVED IN ENGLAND

TRAVELERS on the great highway which leads through Staines by the Belfont church can see two ancient yew trees cunningly trained and clipped to represent peacocks, which stand on either side of the wicket gate.

They are large trees, ages old, and how many years of care and skill with the pruning knife they stand for none can tell. These are, perhaps, the most familiar examples of the topiarists' art near the metropolis, but in formal gardens of many stately old country houses their like may be seen in abundance. They are accepted as curiosities, survivals of times past when men had more leisure on their hands than today.

The shaping of living trees into birds and beasts, into spirals, pillars, cannon balls, and any other fantasy chosen, still exists as a British industry. In the Royal Kew nurseries, close by Richmond town, is the largest collection of topiary in the world—nearly 3,000 trees, each one of them trimmed to some animal or bird or architectural form. The work has been done in this open air studio, and it has

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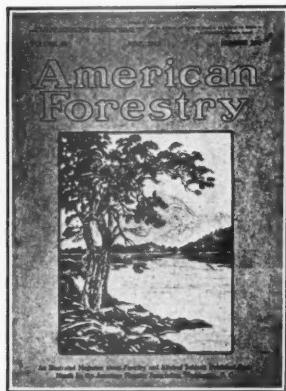
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required exemplary patience. The trouble about establishing a formal garden in years past has been that you do not live to see it. The next generation may enjoy it; but with forms that take 40 or 50, even in cases 80 years, to bring to maturity, it is only the grandchildren who can hope to witness their full perfection.

In the Royal Kew nurseries are specimens that have had 45 years' care and attention. Cock pheasants, sitting hens, peacocks with spread wings, dogs, geese and ducks, all growing, thickly cumber the ground. It must be a nightmare of a place to stumble upon unexpectedly on a moonlit night, with all these immobile forms about. Holland for centuries has assiduously cultivated this art, but in England it has experienced cycles of favor, followed by neglect.

Topiary has revived under conditions which make it no longer necessary to spend a lifetime in cultivating and pruning a tree into forms that others may enjoy. The science of horticulture has made

great strides. By transplanting each three or four years the main root is kept in check and fibrous roots encouraged. The roots thus form in a close cluster, and the entire tree, having had from 15 to 40 years' shaping in the nursery, may be transplanted bodily to its permanent place in the newly laid-out garden. Possibly some of the extravagances of the topiarist's art are best avoided, but simple pillars, or cones, or spirals, or round clumps, spaced well apart, give dignity to a terrace or lawn which few other growths can equal.

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JOHN E. STERLOFF.

"I am very much interested in the magazine and heartily in accord with the conservation of our timberlands, which the American Forestry Association is so ably advocating."

G. H. WOODROFFE.

ACCEPT FOREIGN JOBS

THE United States Forest Products Laboratory at Madison announces that two of its experts in kiln drying have resigned to accept positions in foreign countries. Mr. C. V. Sweet and Mr. L. V. Teesdale, who have been with the laboratory for nearly two and a half years, will enter the Forest Service of the Indian Government. Mr. Sweet will have his headquarters at Dehra Dun, India, in the foothills of the Himalaya Mountains. Mr. Teesdale will be located at Rangoon, Burma, which is situated in the lowlands bordering the Sea of Bengal.

Both men will be engaged in the investigation of commercial methods of seasoning timber. Their work will differ only as geographical conditions affect the character and availability of the timber, and will involve travel and exploration into all accessible parts of the provinces as well as laboratory research at the institutions already established.

India and Burma are heavily forested with exceedingly valuable woods, which, like all the other natural resources, are the property of the Government. In the art of silviculture and its development the East leads the West, but in commercial processes of utilization of the wood products the East has much to learn from Western countries, especially America. The availability of the wood products for commercial use depends largely on proper methods of kiln drying, and it is as technical experts in this subject that Mr. Sweet and Mr. Teesdale enter the far Eastern service.

BAMBOO FOR PAPER PULP

THE scarcity of newsprint paper gives special interest to the statement that edible and timber bamboo are both adapted to the climate of the Gulf States and are in a position to aid materially in the production of paper, poles for many purposes for which growing timber is now cut and as an excellent and nutritious vegetable food. This statement is the gist of a report on eight years of experimental work, concluded by E. A. McIlhenny on his plantation at Avery Island, Louisiana, made July first to the United States Bureau of Plant Introduction.

The difficulties which exist in transforming tropical grasses, reeds and rushes into paper are said not to apply to bamboo; and bamboo, unlike the great forests of the temperate zone, grows rapidly so that the supply of paper material would renew itself from season to season. Burma is one of the tropical countries where bamboo is very abundant and it has also necessary facilities for transportation.

Not only is the bamboo of rapid growth and some species attain a great size, even 70 to 100 feet in height with trunks a foot in diameter, but it is often found in arid localities which would otherwise be destitute of vegetation.

FOREST SCHOOL NOTES

SCHOOL OF FORESTRY, COLORADO AGRICULTURAL COLLEGE

SINCE June 9 forestry students of Colorado Agricultural College have been occupying the Forestry Lodge 45 miles west of Fort Collins in the heart of the Rockies, writes Professor W. J. Morrill. There are six students in the summer course, which is optional, but of great importance in the preparation of foresters for western conditions.

"The Lodge is rather inaccessible, thirty miles from a post office and ten miles from the end of possible auto transportation. But it is well equipped with hot and cold water, two bath rooms, screened sleeping porches, a large stone fireplace, good kitchen and the inevitable game of horseshoes. Eight miles by trail and half that distance by air line is the top of Hagues Peak, 13,562 feet elevation, and Hallel's Glacier, in the Rocky Mountain National Park. The night air is direct from the glacier, which causes one to hunt for all the bedding available. The Lodge is at an elevation of 9,027 feet, in Pingree Park.

"The college owns 800 acres of Lodgepole and Engelmann spruce near the Lodge and about the same acreage some nine miles east of here. Timber cruising, mapping, surveying, forest entomology, field geology and silvicultural operations, together with trout fishing and hiking take up the time. And soon we shall move, by man packing, over the Continental Divide to study logging and milling in Middle Park."

MICHIGAN AGRICULTURAL COLLEGE, FORESTRY DEPARTMENT

THE Forestry Summer School was held this year on the lands of the East Jordan Lumber Company, near East Jordan, Michigan. There were twenty-six students enrolled and the courses given were forest mensuration and lumbering. The camp was located in a tract of virgin hardwood, hemlock and pine timber which offered excellent facilities for the work. Three ball games were played by the students during the course of the school, two with East Jordan and one with Charlevoix.

Eight men graduated from the Forestry Department of the Michigan Agricultural College in June and one more graduated at the end of the summer course in August.

All of the freshmen agricultural students of the college take a course in farm forestry which this year was given to one hundred and seventy-five students. These were in addition to the students specializing in forestry.

The Forestry Department of the College shipped 105,000 trees this spring. These

were mostly two-year old seedlings and four-year old transplants. They were sold to farmers of the State at practically cost for forest planting.

NEW YORK STATE COLLEGE OF FORESTRY

THE summer of 1920 has seen all records broken in calls for practical trained foresters for field work in every part of the country, according to the figures given by the New York State College of Forestry at Syracuse. Part of the work of the college has come to be an employment department for its men, under which an effort will be made to properly place, according to their qualifications, foresters and undergraduate students in actual field work along professional lines.

The system was worked out definitely this spring, through a faculty committee, of which O. M. Porter, former Forest Service man, a returned captain of Forest Engineers, was the executive man, and this work will be continued permanently as a function of the extension department of the college. Laurance Lee has taken over the work of Mr. Porter, who has become assistant secretary of the American Paper and Pulp Association, under Dr. Hugh P. Baker, former Dean of the New York State College of Forestry, and has begun a plan of checking up with employers on the work of the men who were sent out by the college.

There were calls for about 400 men for practical forestry or lumbering work received by the college this spring, of which about eighty were for permanent employment for graduates, and the other for summer work for students who have not completed their work. The calls came from about seventy-five sources, ranging from the Federal Forest Service to private lumbering companies, and places as counselors in boys recreational camps. This great demand was a surprise even to Syracuse foresters who had seen the demand for foresters increase with the growth in America of the forestry idea.

Some of the work being done by these foresters is as follows: Two men are in parties cruising pulp wood lands in northern Ontario. A party headed by Prof. Reuben P. Pritchard, and including one graduate student, one alumnus, of an early class, two graduates of this year's class and two freshmen, is working for the James D. Lacey Company, near Cheat Bridge, West Virginia. Five men are in Wyoming driving tie timber on the rivers, under a new plan by which a lumber corporation is employing college men instead of the old "river hogs" to drive the rivers. One of this year's class has gone to management plan work for the Federal Service's new

FORESTERS ATTENTION

AMERICAN FORESTRY will gladly print free of charge in this column advertisements of foresters, lumbermen and woodsmen, discharged or about to be discharged from military service, who want positions, or of persons having employment to offer such foresters, lumbermen or woodsmen.

POSITIONS OPEN

"CCIL ENGINEER TO SURVEY AND MAKE DETAIL MAPS, ABOUT 2,000 ACRES, NEAR NORWICH, CONNECTICUT. EXCELLENT BOARD AND LODGING. STATE TIME AND TERMS. Address Box 940, care of AMERICAN FORESTRY MAGAZINE, Washington, D. C.

MAN WANTED with technical training and practical experience sufficient to make him thoroughly competent as a developer of Park plans, and also Park Superintendent—both in road construction, planting and landscape work—and Director of Forestry Service upon the public streets and parks of the city. Address Box 910, American Forestry Magazine, Washington, D. C. (6-9-20)

Position open for Forest School Graduate. Work along practical and technical lines. Location, Southern Appalachians. Answer in own handwriting and state age, training and experience, and salary desired. Address Box 950, care of AMERICAN FORESTRY MAGAZINE, Washington, D. C.

WANTED—An assistant forester. Good place offered for a recent graduate who would like to get in business for himself in an excellent location. Address Box 920, AMERICAN FORESTRY MAGAZINE. (8-10-20)

POSITIONS WANTED

WANTED—Position as Forester and Land Agent. Technically trained forester, 35 years old. Practical experience along all lines included under the duties of the above positions. Former Captain, Field Artillery. Address Box 840, care of American Forestry, Washington, D. C.

AFORESTRY graduate with several years experience in forest work and at present employed along technical and administrative lines desires responsible position with private concern operating in and outside the United States. Address Box 870, care of American Forestry Magazine, Washington, D. C.

DISCHARGED SAILOR would like position as assistant forester or a permanent position as surveyor with some lumber company with a chance for advancement. Salary is of secondary consideration. Married, so would have to locate in some small town. Have had four years' practical experience in general forestry, and some tree surgery. Address Box 900, care of AMERICAN FORESTRY MAGAZINE, Washington, D. C.

SUPERINTENDENT retail lumber and building material establishment desires connection with progressive lumber concern in locality where there is opportunity for growth. West, Southwest or Middle West preferred, but not essential. Several years experience retail and manufacturing, also eighteen months overseas with Forestry Engineers. Available after August 15th. Address Box 930, care of AMERICAN FORESTRY MAGAZINE, Washington, D. C. (8-10-20)

Position wanted by technically trained Forester. Have had fourteen years experience along forestry lines, over five years on the National Forests in timber sale, silvicultural and administrative work; three years experience in city forestry, tree surgery and landscape work. Forester for the North Shore Park District of Chicago. City forestry and landscape work preferred, but will be glad to consider other lines. Can furnish the best of references. Address Box 600, care of American Forestry Magazine, Washington, D. C.

AMERICAN FORESTRY

School of Forestry UNIVERSITY OF IDAHO

Four Year Course, with opportunity to specialize in General Forestry, Logging Engineering, and Forest Grazing.

Forest Ranger Course of high school grade, covering three years of five months each.

Special Short Course covering twelve weeks designed for those who cannot take the time for the fuller courses.

Correspondence Course in Lumber and Its Uses. No tuition, and otherwise expenses are the lowest.

For Further Particulars Address
Dean, School of Forestry
University of Idaho
Moscow, Idaho

Forestry Training in the Heart of the Rockies

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Professional Courses in Technical Forestry, leading to degrees of Bachelor of Science in Forestry and Master of Forestry.

Spring and Fall Forestry teaching at Manitou Forest (a 7,000-acre forest belonging to the College) and the winter term at Colorado Springs.

Write for announcement, giving full information.

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An annual Survey and Review describing private schools of all classifications and summer camps for boys and girls.

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Introductory Chapters review interesting Developments of the Year in education.

Educational Service Bureau will be glad to advise and write you intimately about any school or camp in which you are interested. Write full particulars.

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forest in Tennessee, another to the Forest Service at Lander, Wyoming, while another, is assistant manager of the Mammoth Hot Springs Camp on the Yellowstone National Park. Another alumnus of the college will be camp director this year for the Syracuse Boy Scout council, which maintains a permanent camp for two months on Crooked Lake, near Syracuse.

The wide scattering of foresters shows that the industries are realizing the need for forest trained men in manufacturing concerns and industries using wood. In addition to this list of men in field forestry, another long list could be given of men who have gone to saw mill and similar concerns for the summer work.

Prospects for next fall are that there will be a record-breaking class, indications being that there will be 150 accepted for entrance into the new class, as against 120 last fall, that being a record to that time.

The students at the State Ranger School at Wanakena, a department of the New York State College of Forestry at Syracuse, have planted 50,000 trees this spring on the school forest, making a total of 150,000 trees now planted and under observation. The school also made surveys and plans for the reforestation of a 1,700-acre tract for the National Paper Products Company at Streeter, New York, on which a start was made this year with 60,000 transplants.

A. E. Fivaz, a senior, will be president of the Forestry Club next fall, with G. E. French as secretary. Ralph E. Frobisher was made the school representative in the International Association of Forestry Clubs.

Six foresters were included on the Syracuse University lacrosse team which won the northern intercollegiate championship this spring, and of these three seniors were given the university Block "S" as a trophy, the same honor given to players on the football and other major sports teams.

YOUNG MAN recently discharged from the U. S. Navy, wants employment with wholesale lumber manufacturer; college graduate; five year's experience in nursery business; can furnish best of references. Address Box 675, Care American Forestry Magazine, Washington, D. C.

RECENTLY discharged from U. S. Army, young man wants position with a firm who has use for a lumber tallyman and inspector. Has a good education, 11 years' practical experience in lumber and can furnish good references. Address Box 880, care of American Forestry Magazine, Washington, D. C.

ARBORICULTURIST is open to an engagement to take charge of, or as assistant in City Forestry work. Experience and training, ten years, covering the entire arboricultural field—from planting to expert tree surgery—including nursery practice, and supervision in the care and detailed management of city shade trees. For further information, address Box 700, care of American Forestry.

PHILIPPINE FOREST SCHOOL

THE graduation exercises of the Class of 1920, of the Philippine Forest School, at Los Banos, were held in the Malarahat Plantation, hereafter to be known as the Commencement Grove.

The class marched to seats under the trees where the Juniors and visitors were assembled. Forester Zschokke gave a short talk on "Put Yourself in His Place," emphasizing the need of understanding the point of view of the men with whom the graduating class would soon have to deal.

The diplomas were then handed out, and the honor graduates were as follows: Highest scholarship, Tin Me Hai, Ling Gien Ying; winner of the Ahern Medal, Luis Adona; first honor man, Juan Fontanoza; second honor man, Amando Curamang.

Professor Harold C. Cuzner, Dean of the College of Agriculture, made a few remarks. He said he was delighted to be present and while he had no special message to give, still he felt that it would not come amiss to emphasize the need of understanding the other man, saying, "No one can do his best work if he creates friction and animosity and the only way to avoid unnecessary misunderstandings and opposition is to put yourself in the other man's place and when you understand him you can prevent friction."

Mr. Harry T. Edwards, former Director of Agriculture, gave them some good advice and ended by saying, "Concentration of your energies upon the essentials means success upon this new trail that you are today starting upon."

The Forest School orchestra furnished music during the exercises. After the exercises were over, Director Fischer talked with the students and bade them farewell.

WISCONSIN REGISTERS FARM NAMES

UNDER a new Wisconsin law, effective for the past two years, farmers are now in a position to register names for their farms, a system that appeals both to the senses of beauty and utility. The name may well become a trademark for the farmer's products. A large number of farmers in Marinette County have taken advantage of the law and the love of trees is as much reflected in the names as is any other sentiment. Such names as "The Oaks," "The Poplars," "The Pines," are common. The name "Oak Ridge Farm," at once calls up the picture of a long hill surmounted probably by a single oak "Maple View Farm" may have a grove of maples in the prospect that the farmhouse faces. "Forest View" offers a similar suggestion. "Twin Oaks Farm" or "Twin Maples Farm" hardly need additional directions to guide the seeker. Various groves have given names to farms and the tree motif is also seen in "Beechwood," "Cedar View" and "Elmhurst."

PLANT MEMORIAL TREES

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